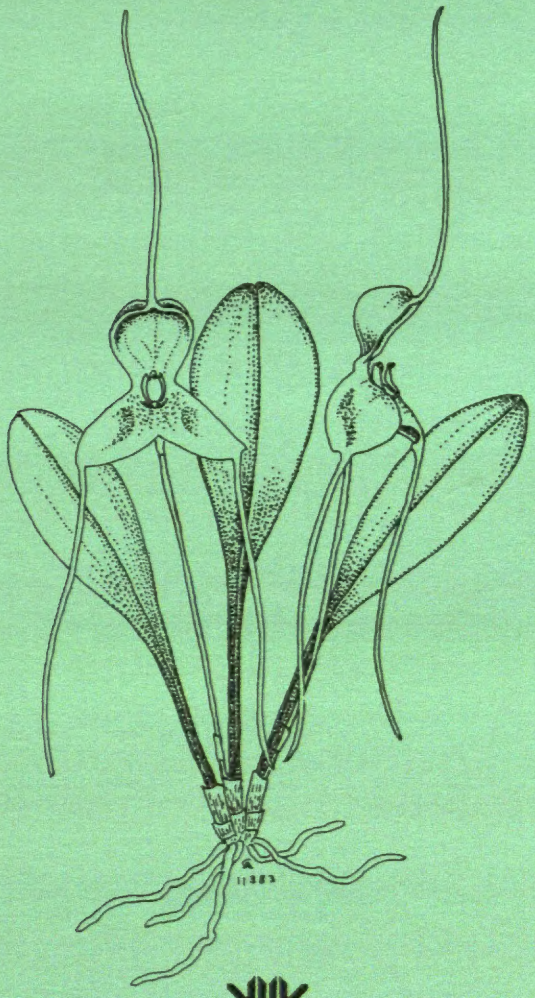
ICONES PLEUROTHALLIDINARUM
XXIII

SYSTEMATICS OF MASDEVALLIA

PART FOUR



Missouri Botanical Garden

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ICONES PLEUROTHALLIDINARUM
XXIII

SYSTEMATICS OF MASDEVALLIA

PART FOUR

M. Subgenus MASDEVALLIA
Section MASDEVALLIA
Subsection CAUDATAE
Subsection OSCILANTES
Subsection SALTATRICES

Carlyle A. Luer

Missouri Botanical Garden

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FOREWORD

Part One contains the approximately 100 species attributed to subgenus *Polyantha*. Part Two contains about another 100 species in four sections of subgenus *Masdevallia* and the subgenus *Pygmaeia*. Part Three contains subsection *Masdevallia* and section *Minutae*, together for another 100 species. Part Four contains three more subsections of *Masdevallia* for about another 100 species.

The species that have been added subsequently to previously treated taxa are included at the end of Part Four. To keep the work current, these pages are numbered to place them in alphabetical sequence within the section; that is, page 33a can be removed, if desired, and inserted between pages 32 and 33 of Part One. This maneuver is accomplished simply in the loose leaf edition, but care should be exercised in removing pages in the glue-bound edition. Further additions are inevitable, hence the present format with text on the odd-numbered page and the illustration on the reverse, the even-numbered page. The pages and plates of Part Four are numbered as continuations of Part Three, beginning with page 781 and Plate 394.

Replacement pages with changes in text or keys will eventually be included. These pages will retain the same number but with an exponent (^{1}) to indicate that it is the first change to that page. The page it replaces should be discarded. A page with the exponent (^{2}) will indicate that it is the second change to that page. Most changes will not be printed until the final part.

Again, the veteran proofreaders have been Mrs. Amy McPherson, and Mr. and Mrs. H. Phillips Jesup.

New species in text of Part Four:
Masdevallia brockmuelleri Luer, sp. nov.
Masdevallia cordeliana Luer, sp. nov.
Masdevallia cretata Luer, sp. nov.
Masdevallia ephelota Luer & Cloes, sp. nov.
Masdevallia pollux Luer & Cloes, sp. nov.
Masdevallia siphonantha Luer, sp. nov.
Masdevallia tricycla Luer, sp. nov.

Additional species for Part One:
Masdevallia barrowii Luer, sp. nov., page 33a, to *precede* page 33.
Masdevallia zumbuehlerae Luer, sp. nov., page 263a, to *precede* page 263.

Additional species for Part Two:
Masdevallia lappifera Luer, sp. nov., page 319a, to *precede* page 319.
Masdevallia velella Luer, sp. nov., page 367a, to *precede* page 367.
Masdevallia smallmaniana Luer, sp. nov., page 505a, to *precede* page 505b.
Masdevallia strattoniana Luer, sp. nov., page 505b, to *precede* page 505.

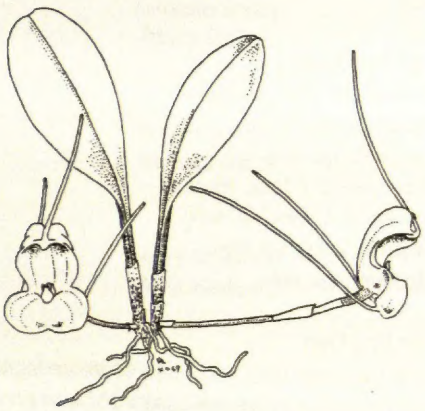
Additional species for Part Three:
Masdevallia calocalix Luer, sp. nov., page 533a, to *precede* page 533.
Masdevallia repanda Luer, sp. nov., page 659a, to *precede* page 659.

Abbreviations of the names of authors are in accordance with the recommendations in *Authors of Plant Names*, R.K. Brummit and C.E. Powell, Royal Botanic Gardens, Kew, 1992.

Acronyms of the names of herbaria are in accordance with *Index Herbariorum, Part I: Herbaria of the World*, Eighth Edition, P.K. Holmgren, N.H. Holmgren, and Lisa C. Barnett, New York Botanical Garden, 1990.

Abbreviations of the names of publications follow the recommendations in *Botanico-Periodicum-Huntianum* (BPH), G.H.M. Lawrence, A.F.G. Buchheim, G.S. Daniels, and H. Dolezal, Hunt Botanical Library, Pittsburgh, PA, 1968.

The illustrations are selected from a large accumulation of evolving styles made over a 27-year period. The illustrations inked by Stig Dalström since 1992 bear his initial-logo beneath my initials as the illustrator.



SYSTEMATICS
OF
MASDEVALLIA
PART FOUR

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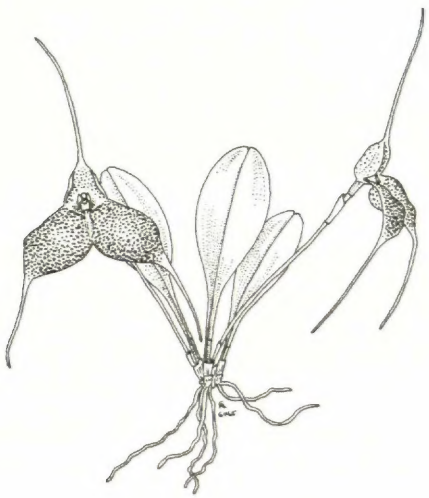

Watercolor by Stig Dalström

Masdevallia xanthina *subsp.* pallida

MASDEVALLIA SUBSECTION CAUDATAE

Masdevallia subgenus **Masdevallia** section **Masdevallia** subsection **Caudatae** Veitch, Man. Orchid. Pl. 5: 18, 1889.

Type: *Masdevallia caudata* Lindl., Gen. Sp. Orch. 193, 1833.
Ety.: From the Latin *caudatus*, "with tails," referring to the caudate sepals.

Syn.: *Masdevallia* sect. *Cupulatae* Pfitz., in Engler & Prantl, Nat. Pflanzenfamilien 2(6): 138, 1888.
Type: *Masdevallia shuttleworthii* Rchb.f., Gard. Chron. 3(1): 170, 1875.
Ety.: From the Latin *cupulatus*, "cup-shaped," referring to the short, sepaline cup.

Syn.: *Masdevallia* sect. *Triangulares* Rchb.f., Gard. Chron. 1: 372, 1874.
Type: *Masdevallia triangularis* Lindl., Orch. Lind. 5, 1846.
Ety.: From the Latin *triangularis*, "triangular," referring to the shape of the flower.

Subsection *Masdevallia* is characterized by the sepals connate from about midway into a cup, or farther into a tube, with all intermediate degrees of connation present. It lies between two extremes. The sepals of subsection *Caudatae* are shallowly connate or connate below the middle into a widely expanded cup with exposed lip and column flanked by the petals. The depth of the cup varies, with a gradual transition into the deeper cup of subsection *Masdevallia*. A few intermediate species pose a problem, so they should be sought in either of the two subsections.

The plants are caespitose with coriaceous, petiolate leaves that are similar in all the species of the section. The elongate peduncle is slender, terete, and single-flowered. The ovary is smooth. The usually widely spread, more or less similar, long-tailed sepals are connate basally into a shallow, gaping, sepaline cup. The column with flanking petals and lip stand more or less erect and usually exposed conspicuously in the center of the flower.

The petals are cartilaginous and carinate along the labellar margin, usually with a well-developed, retrorse, tooth-like process at the base. The lip is thin, flat, and more or less oblong, with the disc smooth or with a low pair of longitudinal calli. There is sometimes minimal thickening toward the base. The apex is usually broadly obtuse without a proximal constriction. However, the lip is often more or less narrowed below the apex. The lip is not sigmoid when viewed from the side, as often seen in subsection *Oscillantes*. A callus is usually present at the apex in both subsections.

The base is delicately hinged on the end to a free extension of the end of the column-foot. Usually, the lip is held erect between the petals and in front of the column. In those species with the column, petals and lip in a more or less horizontal position, the lip may be passively motile, as in subsection *Oscilantes*. The difference between subsection *Caudatae* and subsection *Oscilantes* is gradual, so the subsection may not be clear. As in subsection *Masdevallia*, a species should be sought in either subsection.

This subsection of 57 closely allied species is widely distributed in the mountains of South America from coastal Venezuela through the Andes into Bolivia, but absent from Central America, the Antilles, and Brazil.

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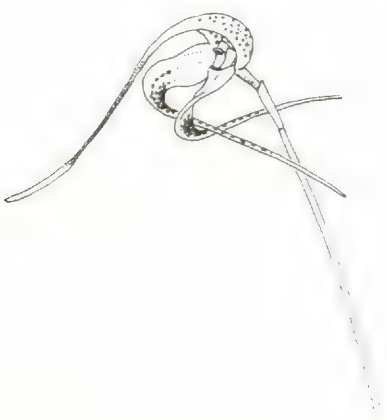
M. xanthina subsp. *mandarina* Luer & Escobar = **M. mandarina**
M. xanthina subsp. *pallida* (Woolward) Luer = **M. xanthina**
M. zamorensis Luer & J.Portilla .....Plate 465.



KEY TO THE SPECIES OF SUBSECTION *CAUDATAE*

As in subsection *Masdevallia*, this key is based primarily on color, because of the numerous species with a similar basic morphology.

1 Sepals mostly white 2
1' Sepals variously colored 11

2 Dorsal sepal erect, pubescent, not concave ..... *M. apparitio*
2' Dorsal sepal concave, variously pubescent 3

3 Dorsal sepal with the blade twice longer than wide 4
3' Dorsal sepal with the blade about as long as wide 5

4 Sepals unspotted; lip elliptical-oblong ..... *M. schizantha*
4' Sepals diffusely spotted; lip cuneate, widest below the middle ..... *M. replicata*

5 Lateral sepals with sides revolute; lip narrowed above the middle ..... *M. boliviensis*
5' Lateral sepals not with sides revolute; lip elliptical-oblong 6

6 Dorsal sepal deeply connate to the laterals, half to 1/3 the length 7
6' Dorsal sepal shallowly connate to the laterals, ca. 1/5 the length 8

7 Plant less than 8 cm tall; sepals more or less pigmented at the base ..... *M. bottae*
7' Plant over 15 cm tall; sepals diffusely speckled with purple ..... *M. pandurilabia*

8 Sepals unspotted 9
8' Sepals spotted 10

9 Dorsal sepal 15-18 mm long ..... *M. klabochiorum*
9' Dorsal sepal 10-12 mm long ..... *M. nivea*

10 Plant more than 6 cm tall; lateral sepals with a dark spot at the base ..... *M. xanthina*
10' Plant less than 5 cm tall; sepals minutely speckled ..... *M. renzii*

11 Sepals mostly light green or light yellow-green 12
11' Sepals with other colors 16

12 Sepals free nearly to the base, minutely speckled 13
12' Sepals deeply connate 14

13 Dorsal sepal more than 3 cm long, tail more than 6 cm long ..... *M. wurdackii*
13' Dorsal sepal less than 3 cm long, tail less than 4 cm long ..... *M. discolor*

14 Lateral sepals with few purple spots, reflexed and crossed ..... *M. schmidt-mummii*
14' Lateral sepals not spotted, reflexed and crossed 15

15 Lateral sepals suffused with rose; lip elliptical-oblong, entire ..... *M. hubeinii*
15' Lateral sepals speckled with brown; lip elliptical, erose ..... *M. ephelota*

16 Sepals mostly yellow to orange 17
16' Sepals with other colors 35

17 Sepals orange, unspotted 18
17' Sepals yellow, light yellow, cream, or light yellow-orange 20

18 Dorsal sepal deeply cucullate, the lateral sepals decurved at the center, all 3 tails acutely reflexed ..... *M. prodigiosa*
18' Dorsal sepal cucullate, the lateral sepals not decurved, the tails not acutely reflexed 19

19 Petals with a retrorse basal process ..... *M. mandarina*
19' Petals with a lobule on either margin at the base ..... *M. phlogina*

20 Sepals diffusely dotted with brown, the dorsal sepal deeply cucullate only at the apex, the synsepal concave ..... *M. harlequina*
20' Not as above 21

21 Dorsal sepal with blade more than 3 cm long, sepals cream colored .. *M. immensa*
21' Dorsal sepal with blade less than 2.5 cm long 22

22 Lateral sepals with sides revolute ..... *M. cordeliana*
22' Lateral sepals with sides not revolute 23

23 Lateral sepals with the margin concave at base, then convex ..... *M. brockmuelleri*
23' Lateral sepals neither concave nor convex 24

24 Dorsal sepal shallowly concave, erect, pale flesh colored ..... *M. vexillifera*
24' Dorsal sepal deeply concave 25

25 Sepals with stellate trichomes ..... *M. asterotricha*
25' Sepals not with stellate trichomes 26

26 Sepals suborbicular to broadly ovate, abruptly contracted into tails 27
26' Lateral sepals oblong to triangular, acute to subacute 33

27 Sepals cream-colored, with a dark spot at the base of the laterals 28
27' Sepals suffused or speckled with red, brown or purple 29

28 Petals with a thick incurved, basal process; lip oblong ..... *M. xanthina*
28' Petals with a broad, obtuse, basal process; lip subquadrate ..... *M. leonii*

29 Sepals lightly suffused with red or brown 30
29' Sepals speckled with red or purple 32

30 Petals with a thick, retrorse, basal process; lip widest above the middle ..... *M. eucharis*
30' Petals with a triangular, basal process 31

31 Lip elliptical, minutely erose ..... *M. rufescens*
31' Lip pyriform, minutely undulate, widest below the middle ..... *M. zamorensis*

32 Dorsal sepal narrow at the base; petals with an oblong, basal process..*M. icterina*
32' Dorsal sepal broad at the base; petals with a triangular, basal process....*M. pernix*

33 Lip tri-callous at the apex.....*M. tricallosa*
33' Lip with a single, marginal callus 34

34 Lateral sepals acute, speckled with purple.....35
34' Lateral sepals broadly obtuse, speckled with red.....36

35 Lip widest above middle, with a reflexed, oblong, apical lobe.....*M. triangularis*
35' Lip widest below middle, with the apex narrowly truncate.....*M. instar*

36 Sepals light green or yellow-green, the laterals with a large zone of orange or red-orange.....37
36' Sepals of other colors 39

37 Lateral sepals oblong, obliquely truncate.....*M. venatoria*
37' Lateral sepals not oblong, truncate.....38

38 Lateral sepals deeply connate, broadly obtuse.....*M. sanctae-inesiae*
38' Lateral sepals shallowly connate, ovate, acute.....*M. lychniphora*

39 Sepals white or yellow, variously suffused with purple, or solidly purple.....40
39' Sepals of 3 colors 56

40 Lateral sepals connate above the middle 41
40' Lateral sepals connate below the middle.....42

41 Dorsal sepal with the blade 3 cm long; lip trapezoid.....*M. antonii*
41' Dorsal sepal with the blade 1.5 cm long; lip ovate.....*M. cyclotega*

42 Sepals with prominent trichomes 43
42' Sepals glabrous to microscopically pubescent.....44

43 Sepals densely pubescent within .....*M. eumelia*
43' Sepals papillose within.....*M. papillosa*

44 Dorsal sepal narrow, 3-veined, more than twice longer than wide.....45
44' Dorsal sepal broad, 5-veined, less than twice as long as wide.....49

45 Dorsal sepal erect, with tail 6-7 cm long.....*M. setacea*
45' Dorsal sepal more or less anteflexed, with tail less than 4 cm long.....46

46 Lateral sepals obtuse, abruptly contracted into tails.....*M. estradae*
46' Lateral sepals acute to subacute, gradually contracted into tails.....47

47 Leaves subacute to acute; lateral sepals with tails about as long as the blades.....
.....*M. pileata*
47' Leaves obtuse; lateral sepals with tails longer than the blades.....48

48 Dorsal sepal deeply concave and decurved above the middle.....*M. ludibunda*
48' Dorsal sepal concave, but not decurved above the middle.....*M. ludibundella*

49 Dorsal sepal anteflexed with tail decurved.....*M. rhinophora*
49' Dorsal sepal not anteflexed with tail decurved.....50

50 Dorsal sepal erect, slightly concave with tail acutely reflexed.....
.....*M. wuelfinghoffiana*
50' Dorsal sepal not as above.....51

51 Lateral sepals forming a prominent, retrorse mentum.....*M. arminii*
51' Lateral sepals not forming a prominent mentum.....52

52 Lateral sepals larger than the dorsal sepal, diffusely and solidly dotted with purple.....53
52' Lateral sepals not significantly larger than the dorsal sepal, not solidly dotted with purple.....55

53 Leaves 3.5-6 cm wide, with an equally long petiole.....*M. alismifolia*
53' Leaves less than 3 cm wide, with a shorter petiole.....54

54 Leaves 3-5 cm long; peduncle 3-5 cm long.....*M. decumana*
54' Leaves 8-10 cm long; peduncle 10-12 cm long.....*M. marizae*

55 Sepals white, variously suffused with rose-purple.....*M. cloesii*
55' Dorsal sepal white with 5 rose veins, lateral sepals purple.....*M. valenciae*

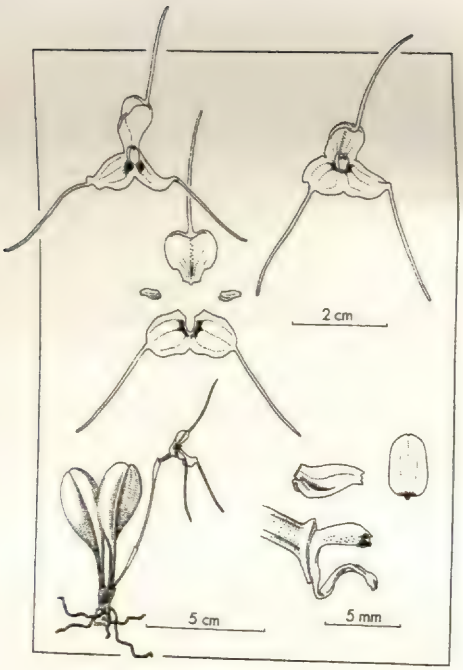
56 Sepals white, the dorsal sepal suffused with orange, the center of the dorsal sepal and bases of the lateral sepals bright red-purple.....*M. cylix*
56' Not colored as above.....57

57 Dorsal sepal concave, bright rose within, yellow toward the base, the lateral sepals light rose with 3 rose stripes.....*M. purpurella*
57' Not colored as above.....58

58 Dorsal sepal yellow with red-brown stripes; lateral sepals yellow, suffused and striped in red.....*M. iris*
58' Not colored as above.....59

59 Dorsal sepal golden yellow, red-cellular papillose, the lateral sepals light rose with 3 darker rose stripes.....*M. polychroma*
59' Dorsal sepal greenish white with purple veins, yellow toward the base, the lateral sepals white, diffusely dotted with purple.....60

60 Lip broadly oblong with the callus distant from the margin.....*M. caudata*
60' Lip oblong with the apical callus marginal.....*M. expansa*

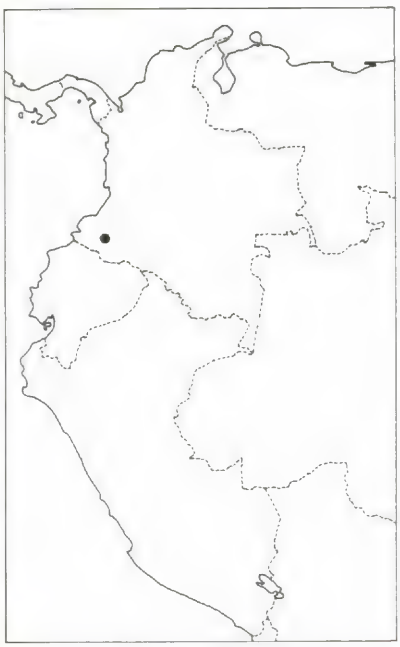

2 cm
5 cm
5 mm

Masdevallia alismifolia Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 422, 1921.

Ety.: Named for the vegetative similarity to *Alisma plantago* L., a member of the family Alismaceae.

Plant large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 8-12 cm long, enclosed by a loose, tubular sheath and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, 15-27 cm long including the petiole 7-11 cm long, the blade elliptical, subacute to obtuse, 3-6 cm wide, cuneate below into the petiole. **Inflorescence** a large, solitary flower, borne by a slender, erect peduncle 8-14 cm long, with a tubular bract below the middle, from above the base of the ramicaul; floral bract 15-17 mm long; pedicel 18-22 mm long; ovary brown, 8-9 mm long; **sepals** dull purple, diffusely and intensely dotted with dark purple on a minutely verrucose, sparsely short-pubescent surface within, the dorsal sepal obovate, 20-25 mm long, 16-18 mm wide, connate to the lateral sepals for 13-14 mm to form a conical, sepaline tube, the apex obtuse, contracted into a slender, erect, yellowish tail 3-4 cm long, the lateral sepals ovate, oblique, acute, 30-35 mm long, 15-16 mm wide, connate for 12 mm to form a deep mentum below the column-foot; **petals** white, oblong, 9 mm long, 3.25 mm wide, the apex subtruncate, bilobulate, the labellar margin with a longitudinal, minutely red-verrucose callus, ending in an acute, retrorse point above the base; **lip** rose, diffusely dotted with purple, oblong, 7.5 mm long, 4.5 mm wide, the apex obtuse, decurved, the disc shallowly channeled between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** white with a purple margin, semiterete, 8 mm long, the foot 5 mm long with a slender, incurved extension.

COLOMBIA: **Nariño**: near the cross between Pasto and La Cocha, alt. 3300 m, 24 Oct. 1878, *F.C. Lehmann s.n.* (Holotype: W). **Putumayo**: epiphytic in scrub forest between La Cocha and Sibundoy, alt. 2870 m, 1 Aug. 1978, *C. Luer, J. Luer & R. Escobar 3121* (SEL); same area, alt. 3000 m, 19 Jan. 1979, *C. Luer & J. Luer 3705* (AMES, SEL); same area, alt. 3000 m, 26 Jan. 1987, *C. Luer, J. Luer, R. Escobar, C. Dodson & O. Benavides 12554* (MO).



This truly beautiful species was first collected in the early 1840's by the prolific German collector Karl Theodor Hartweg in the employ of the London Horticultural Society. Although "Popayán" in present-day Cauca is noted on the collection label, Río Blanco is a little farther south near present-day Nariño in Putumayo where this rare species has been found to be locally frequent.

The plants grow at cool, moist, high altitudes near 3000 meters above sea level in low, dense forests on lower branches or better terrestrially in the thick leaf-litter. The leaves are large and long-petiolate, and the peduncle that bears the large, showy flower is usually no longer than the petiole. The broad, long-tailed sepals are diffusely dotted with confluent dark purple dots (see Frontispiece of *Icones Pleurothallidinarum*-II, 1986).

Plants are difficult to cultivate, usually deteriorating quickly, becoming smaller each year. If they flower at all before expiring, the flower is also much smaller than those produced in the wild.

In *Thesaurus Masdevalliarum*-14, this species was erroneously identified as *M. laevis*. See *Icones Pleurothallidinarum*-22 and *A Treasure of Masdevallia*-26.

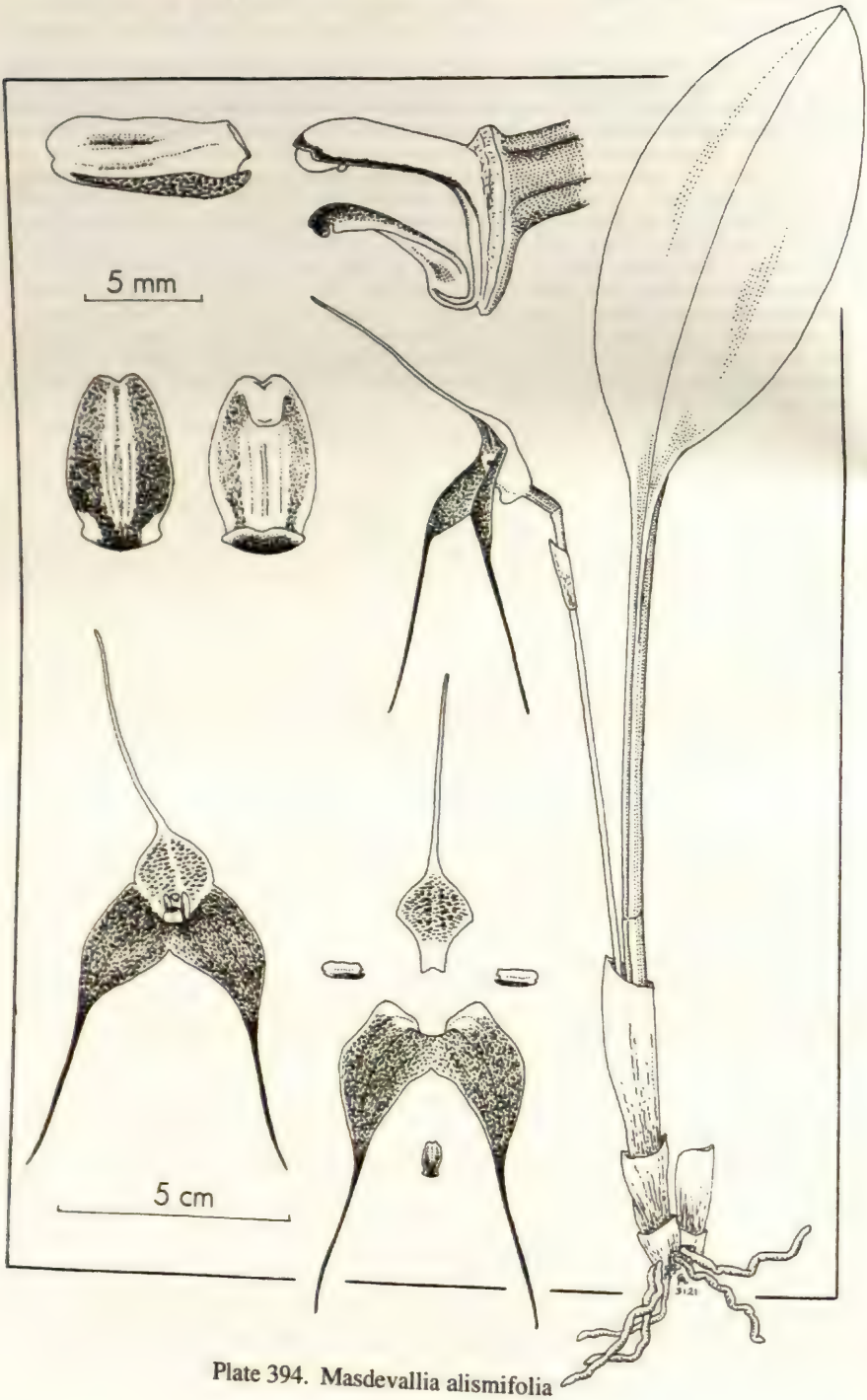


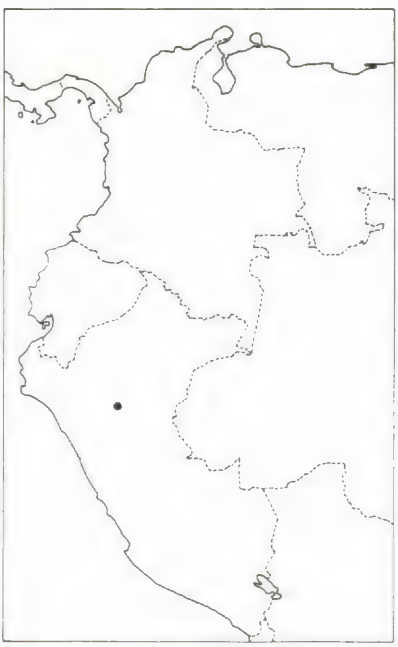
Plate 394. Masdevallia alismifolia

Masdevallia antonii Königer, Arcula 8: 221, 1999.

Ety.: Named in honor of Antonius P. Sijm of Venhuizen, the Netherlands, co-collector of this species.

Plant large, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 3-5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 12-16 cm long including the petiole 3-4 cm long, the blade elliptical, subacute to obtuse, 2.5-3.5 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 12-18 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 18-25 mm long; pedicel 15-20 mm long; ovary 7-8 mm long; **sepals** microscopically prickly, especially along the veins and margins, glabrous internally, the dorsal sepal white, pale yellow along the veins, elliptical, concave, 30 mm long, 20 mm wide, 7-veined, connate to the lateral sepals for 3 mm to form a gaping, sepaline cup, the apex broadly rounded, contracted into a slender, forwardly directed, yellow tail 6-7 cm long, the lateral sepals white but diffusely suffused with bright rose, especially medially on the distal halves, 22 mm long, connate 17 mm into a broadly oblong synsepal, 33-38 mm wide expanded, 6-veined, concave and inflated medially, the obtuse apices contracted into tails similar to that of the dorsal sepal, 5.5-6.5 cm long; **petals** yellowish white, oblong, 5.5 mm long, 1.75-2.75 mm wide, the apex subtrilobulate, with a longitudinal carina along the labellar margin terminating at the base with a thickened, incurved callus; **lip** white, transversely trapeziform-bilobed, unguiculate, 4 mm long including the 1 mm long claw, 4-4.5 mm wide, the lobes obliquely triangular, obtuse, the apex purple, broadly rounded with a small, round, midline callus, the disc shallowly sulcate between a pair of low, longitudinal calli, the claw with a thick margin at the free end, hinged beneath to the under surface of the column-foot; **column** white, semiterete, stout, 3.5 mm long, the foot 3 mm long, with an incurved extension.

PERU: **Pasco**: between Oxapampa and Yaupi, alt. 2200 m, collected Nov. 1998 by A.P. Sijm, W. Königer & S. Manning, flowered in cultivation at Venhuizen, the Netherlands, 14 Aug. 1999, by A.P. Sijm, *W. Königer WK-88* (Holotype: M); same source, flowered by *A.P. Sijm 991202* (Clonotype: MO), C. Luer illustr. 19397; same source, flowered in cultivation Apr. 2000, in Tarporley, England, by *S. Manning 811002* (Clonotype: MO).



This species is one of the largest and one of the most spectacular of this subsection. It is apparently endemic in northern Peru, where it was recently discovered. The large, leathery leaf is long-petiolate. The large, long-tailed flower is borne beyond the tips of the leaves by an erect peduncle. The sepals are basically white with a bright rose suffusion on the laterals, especially medially where the synsepal is inflated. The concave dorsal sepal is shallowly connate to the laterals, permitting the petals, column and lip to stand erect and exposed in the center of the flower. The lateral sepals are deeply connate, concave and inflated, vaguely resembling the cupped synsepal of the unrelated *M. trochilus* of subsection *Alaticaules*.

The petals are lobulate at the apex and they posses a thick, incurved callus at the base. The passively mobile lip is the most diversely modified of the subsection. It is transversely trapeziform in outline with obtuse lateral lobes. The base is constricted into a claw with a free tip, being connected by a strap from the under surface to the under surface of the extension of the column-foot.

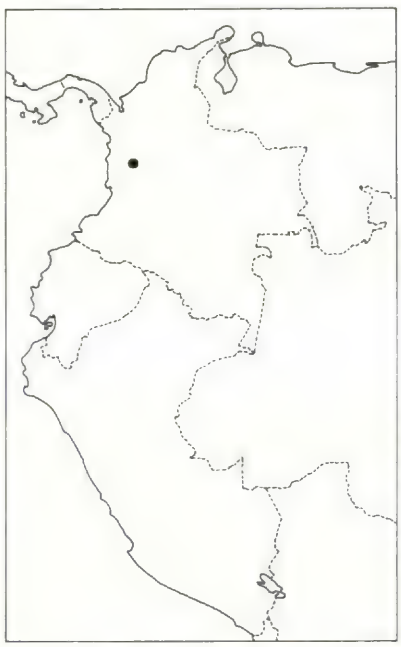
Plate 395. Masdevallia antonii

Masdevallia apparitio Luer & Escobar, Orquideología 13: 145, 1979.

Ety.: From the Latin *apparitio*, "a ghost," in allusion to the large, widely spread, white flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-2.5 cm long, enclosed by 2-3 dark, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-9 cm long including the petiole 2.5-3 cm long, the blade elliptical, obtuse to rounded, 2-2.7 cm wide, the base cuneate into the slender, blackish petiole. **Inflorescence** a single flower borne by a suberect, slender peduncle 8-9 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 15 mm long; pedicel 10-12 mm long; ovary white, 6-7 mm long; **sepals** white, convex, minutely pubescent internally, the dorsal sepal obovate, 22 mm long, 12 mm wide, connate to the lateral sepals for 5 mm into a very shallow, gaping, sepaline cup, the rounded apex abruptly contracted into a slender, erect, yellow-green tail ca. 5 cm long, the lateral sepals oblong, oblique, diverging, 17 mm long, 10 mm wide, the apices obtuse, contracted into slender tails similar to that of the dorsal sepal, connate 2 mm basally into a short mentum behind a transverse fold below the column-foot; **petals** white, oblong, 6 mm long, 2-3.25 mm wide, contracted into a narrowly truncate, obscurely bilobed apex, the labellar margin with a thick, longitudinal callus produced below the middle into an incurved lamina ending in an obtuse tooth above the base; **lip** white, dotted with purple, erect, elliptical, 5.5 mm long, 3 mm wide, the apex rounded with a small, marginal callus, the disc with an indistinct pair of low, longitudinal calli, the base rounded, hinged beneath to the column-foot; **column** white, marked with purple, semiterete, 5 mm long, the foot thick, 3 mm long, with a slender, incurved extension.

COLOMBIA: **Antioquia**: Munic. of Urrao, "El Chuzcal," alt. 1800-2200 m, 1975, collected by E. Segura, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 1490* (Holotype: JAUM); same collection, cultivated 28 Sept. 1977, by M. & O. Robledo at La Ceja, *C. Luer 1857* (SEL).



Only a single plant of this distinctive species, one of the many discoveries of the professional collector Evelio Segura, is known to have been collected. All plants in cultivation have been propagated from divisions of the original plant. It was discovered in the Western Cordillera of Colombia growing in company with *M. estradae* and closely related *M. xanthina*.

From *M. xanthina* it is distinguished by the large white flowers without a basal "eye-spot;" convex sepals covered within by a short, dense, white pubescence; and longer, straight, diverging, yellow-green tails. It is most closely allied to *M. klabochiorum*, from which it is most easily distinguished by the convex, instead of deeply concave, dorsal sepal. In common with its allies, the petals, lip and column stand erect together and exposed in the center of the flower.

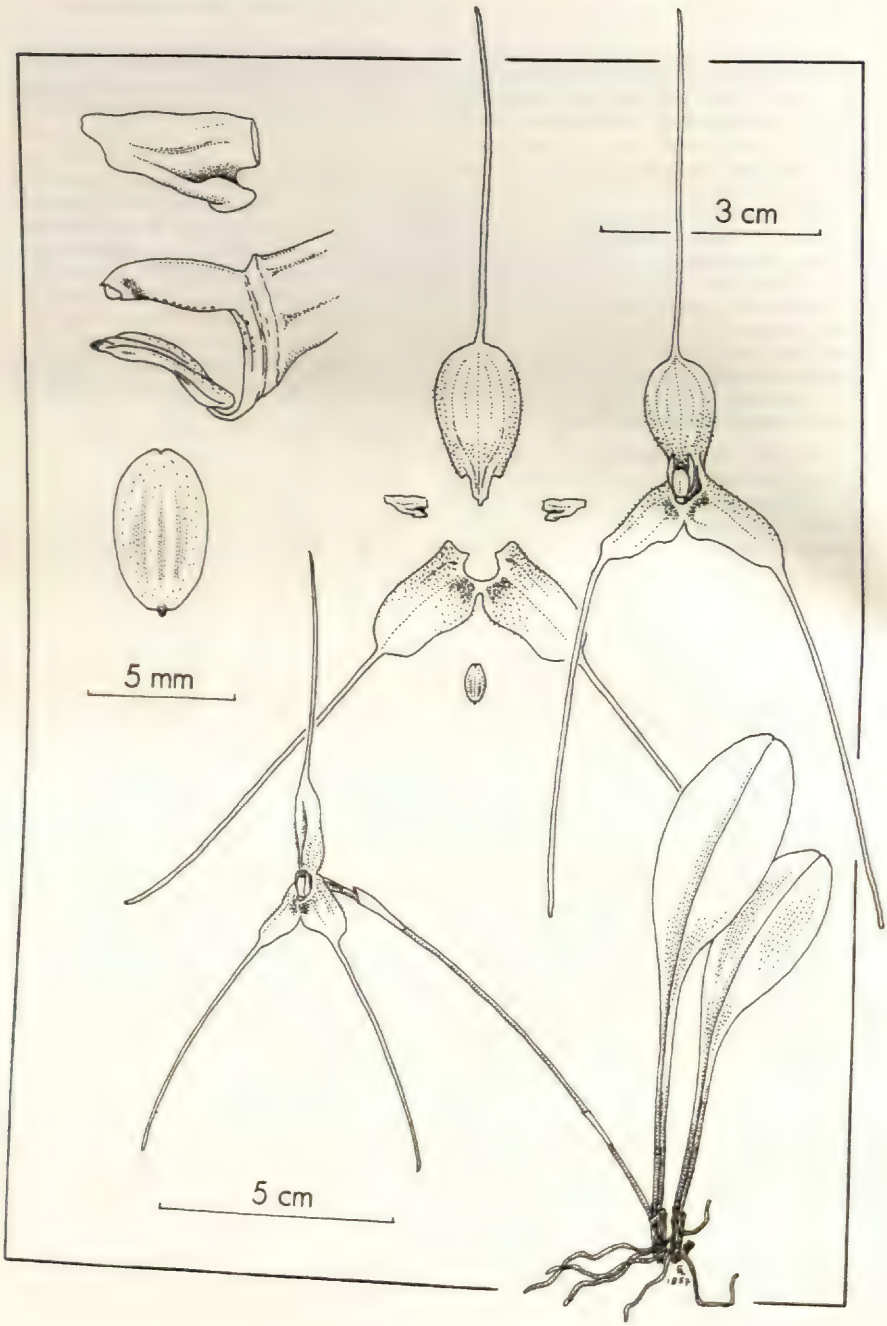


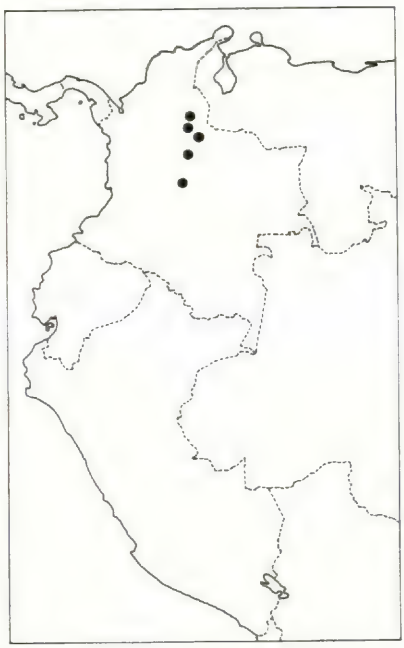
Plate 396. Masdevallia apparitio

Masdevallia arminii Linden & Rchb.f., Bonplandia 2: 283, 1854.

Ety.: Dedicated to Hermann Wagener, one of the discoverers of this species. Armin is the Latinized form of Wagener's Christian name.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-11 cm long including a petiole 1.5-3 cm long, the blade elliptical, subacute to obtuse, 1.5-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 6-11 cm long, with a thin bract above the base, from low on the ramicaul; floral bract tubular, 7-10 mm long; pedicel 8-20 mm long; ovary 6-8 mm long; **sepals** light yellow, more or less suffused with purple, occasionally with minute, red dots, glabrous, the margins cellular erose, the dorsal sepal obovate, concave, 13-16 mm long, 8-12 mm wide, connate to the lateral sepals for 4-5 mm to form a shallow cup, the rounded apex abruptly contracted into a slender, yellowish tail 3.5-5 cm long, the lateral sepals oblong, oblique, 12-14 mm long, 8-12 mm wide, connate 2-3 mm, with a deep, conical secondary mentum, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5-6 mm long, 2 mm wide, the apex truncate-tridenticulate, the labellar margin with a longitudinal wing-like callus, gradually thickening into an obtuse angle at the base; **lip** white, suffused with purple, oblong, 4-4.5 mm long, 2.5-2.75 mm wide, the apex deep purple, subtruncate, with a rounded, marginal callus, the disc shallowly sulcate between a close pair of longitudinal calli near the middle, the base rounded, hinged beneath; **column** white, suffused with purple at the apex, semiterete, 4 mm long, with a pair of calli that terminate with the column-foot, the foot 3 mm long with a slender, incurved extension.

COLOMBIA: **Norte de Santander**: Ocaña, alt. 6,000-7,000 ft., 1846-52, *L. Schlim 740* (Holotype: W; Isotypes: G, K, P); La Baja near Pamplona, alt. 9,000 ft., 1849, *L. Schlim 1182, in part* (G, W); Pericos near Ocaña, alt. 7,000 ft., *H. Wagener 571* (W). **Santander**: Cerro el Guiche, headwaters of Quebrada Chiriviti, west of Galan, alt. ca. 8,000 ft., 9 Sept. 1944, *N.C. Fassett 25747* (AMES); Charalá, Páramo de la Russia, alt. 2200-2600 m, collected by J. Guevara, cultivated by M. & O. Robledo at La Ceja, 12 Oct. 1977, *C. Luer 2006* (SEL); El Taladro, alt. 2200 m, collected by E. Valencia, cultivated at Colomborquídeas, 3 June 1995, *C. Luer 17715* (MO); oak forest, Cachirí, alt. 2600 m, collected by E. Valencia, cultivated at Colomborquídeas, 3 June 1995, *C. Luer 17716* (MO). **Boyaca**: Peña de Gallo, between Vadohondo and Pajarito, alt. 2200-2600 m, May 1974, collected by J. Vásquez, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13251* (MO). **Cundinamarca**: Río Sabaneta between San Francisco and Facatativa, alt. 2400 m, 4 Dec. 1953, *M. Schneider 669* (S); El Dentel between Facatativa and La Vega, alt. 2700 m, 11 Oct. 1982, *H. Schmidt-Mumm 148* (COL); Munic. of Madrid, collected by H. Schmidt-Mumm between Bogotá and Medellín, cultivated at Colomborquídeas, 29 Nov. 1982, *R. Escobar 2508* (JAUM, SEL); San Antonio de Tena, alt. 2500 m, collected by E. Valencia, cultivated at Colomborquídeas, 3 June 1995, *C. Luer* (MO).



Collections of this species were made independently by both Wagener and Schlim in the Eastern Cordillera of Colombia in 1849. Wagener's collection, accompanied by watercolor painting, was published by Reichenbach as the type. Specimens collected by Schlim (*Schlim 1182*), consisting of two different species, are mounted on separate sheets. One appears to be the larger and more colorful variation of *M. arminii*. The other, with the flower widely expanded on the sheet, appears more closely related to *M. caudata*. This latter collection was published as *M. expansa*.

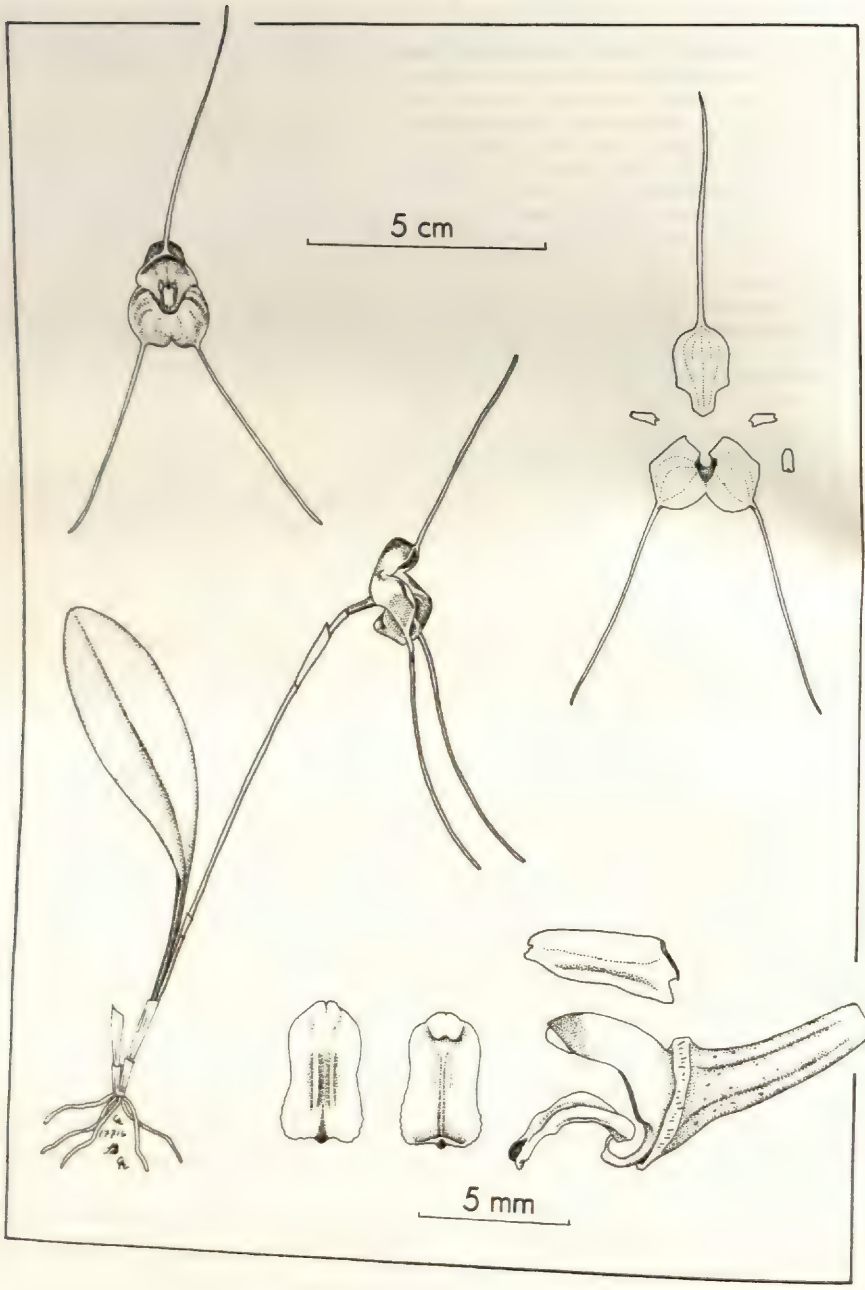


Plate 397. Masdevallia arminii

Vegetatively similar to most of the other medium-sized species, *M. arminii* is distinguished by the flower variously suffused with rose with the dorsal sepal more or less cucullate and decurved, and by the nearly free lateral sepals producing a prominent, conical, secondary mentum (the mentum anterior to a mentum formed with the column-foot). The petals with a short, basal tooth, and the simple, oblong lip with a small, apical callus, stand erect within the flower with the column.

It was not until 1882 that living plants of *M. arminii* were successfully imported into Europe. The "projection" at the base of the column noted by Miss Woolward is a longitudinal pair of calli that terminates at the column-foot.

Two variations are in cultivation. The larger, more colorful variation is represented by *Schlim 1182*. The other specimen under the same number was described as *M. expansa*.

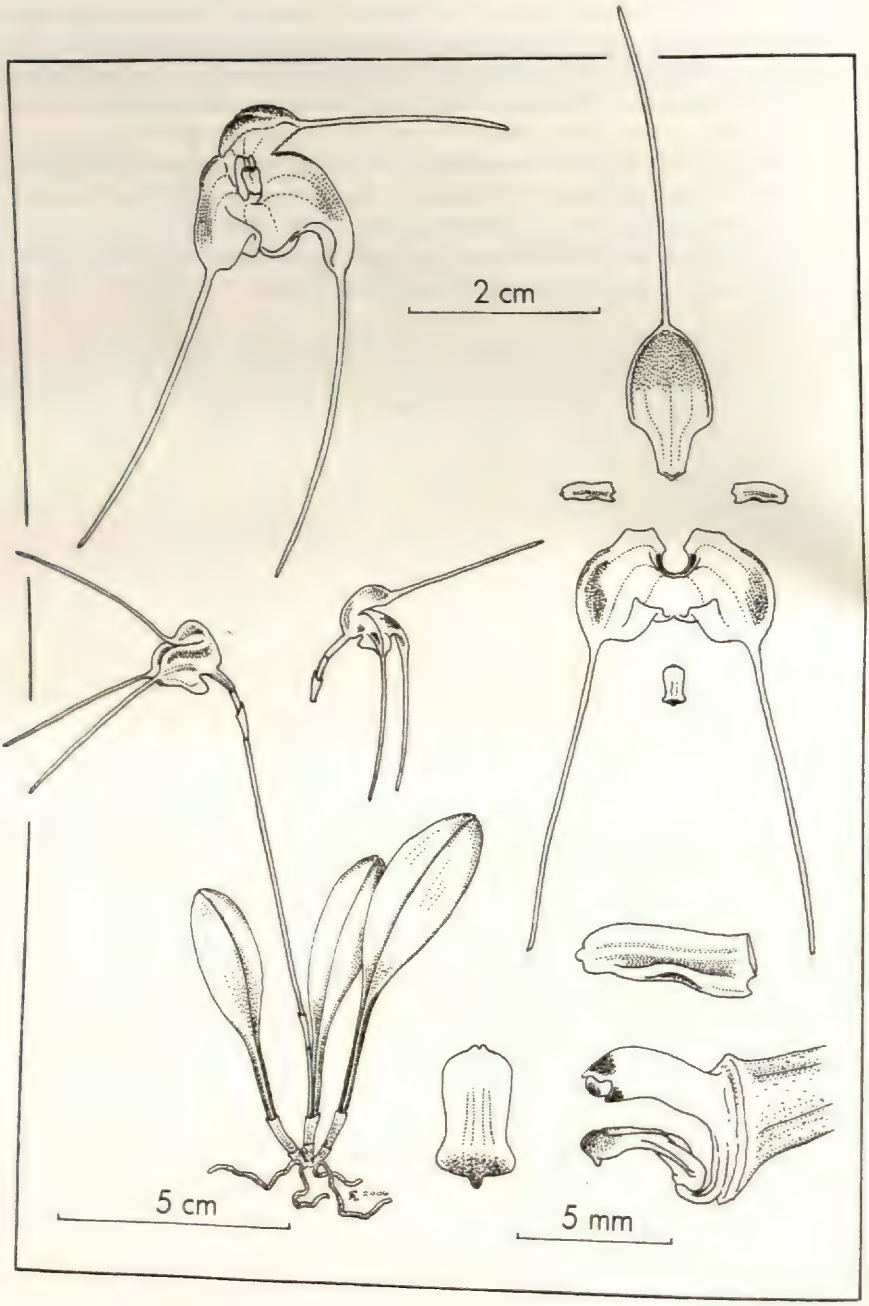


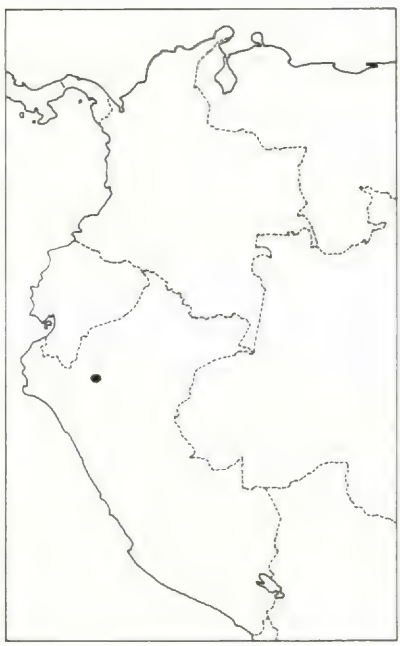
Plate 398. Masdevallia arminii

Masdevallia asterotricha Königer, Die Orchidee 37: 104, 1986.

Ety.: From the Greek *asterothrix*, "star-shaped hair," referring to the stellate trichomes of the interior of the sepals.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls blackish, slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-9 cm long including the petiole 1.5-3 cm long, the blade elliptical-obovate, subacute to obtuse, 1.7-2 cm wide, the base cuneate into the petiole. **Inflorescence** a showy, solitary flower borne by an erect, slender peduncle 6-6.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 18-19 mm long; ovary 8-9 mm long; **sepals** light yellow, pubescent within, the dorsal sepal with conspicuous, red, stellate hairs, broadly ovate, concave at the apex, 14 mm long, 14 mm wide expanded, connate to the lateral sepals for 6 mm to form a broad but shallow, gaping, sepaline cup, the rounded apex thickened, abruptly contracted into a thick, reflexed tail 25 mm long, the lateral sepals with a sparse, white pubescence, broadly ovate, oblique, widespread, 14 mm long, 13 mm wide, connate 7 mm, the rounded apices contracted into tails 22 mm long, less thick than the tail of the dorsal sepal; **petals** yellow-white, oblong, 5.5 mm long, 1.5-3 mm wide, the obtuse apex obliquely shallowly bilobed, the labellar margin with a longitudinal callus terminating above the base in a broad, thick, incurved process; **lip** yellow-white, lightly dotted with purple, oblong-obovate, 5 mm long, 3 mm wide, the apex round with a dark purple, decurved callus on the margin, the disc with an inconspicuous, low pair of calli, the base rounded, hinged beneath; **column** yellowish white, suffused with purple on the margins, semiterete, 4.5 mm long, the foot equally long with a stout incurved extension.

PERU: **Amazonas**: Prov. of Bongará, Vilcanisa, alt. 1500 m, collected by M. Arias A-401a, May 1985, cultivated in Munich, Germany, 25 Oct. 1985, by *W. Königer WK-9* (Holotype: M; clonotypes: K, MO, USM, W, Herb. H. Königer), C. Luer illustr. 11447. **San Martín**: near Moyobamba, alt. 900 m, collected by R. Villena May 1992, cultivated by *I. Rolando 4* (MO).



Related to *M. xanthina* and relatives, *Masdevallia asterotricha* is endemic in the forests of northern Peru. From its relatives, it is distinguished by a relatively large, widely expanded flower with deeply connate, rounded sepals. The distinctive dorsal sepal is concave at the apex with a reflexed, thick tail. The dorsal sepal is diffusely studded with conspicuous, red, stellate trichomes within which impart a red suffusion to the yellow background. The hairs of the lateral sepals are sparse, simple, and white.

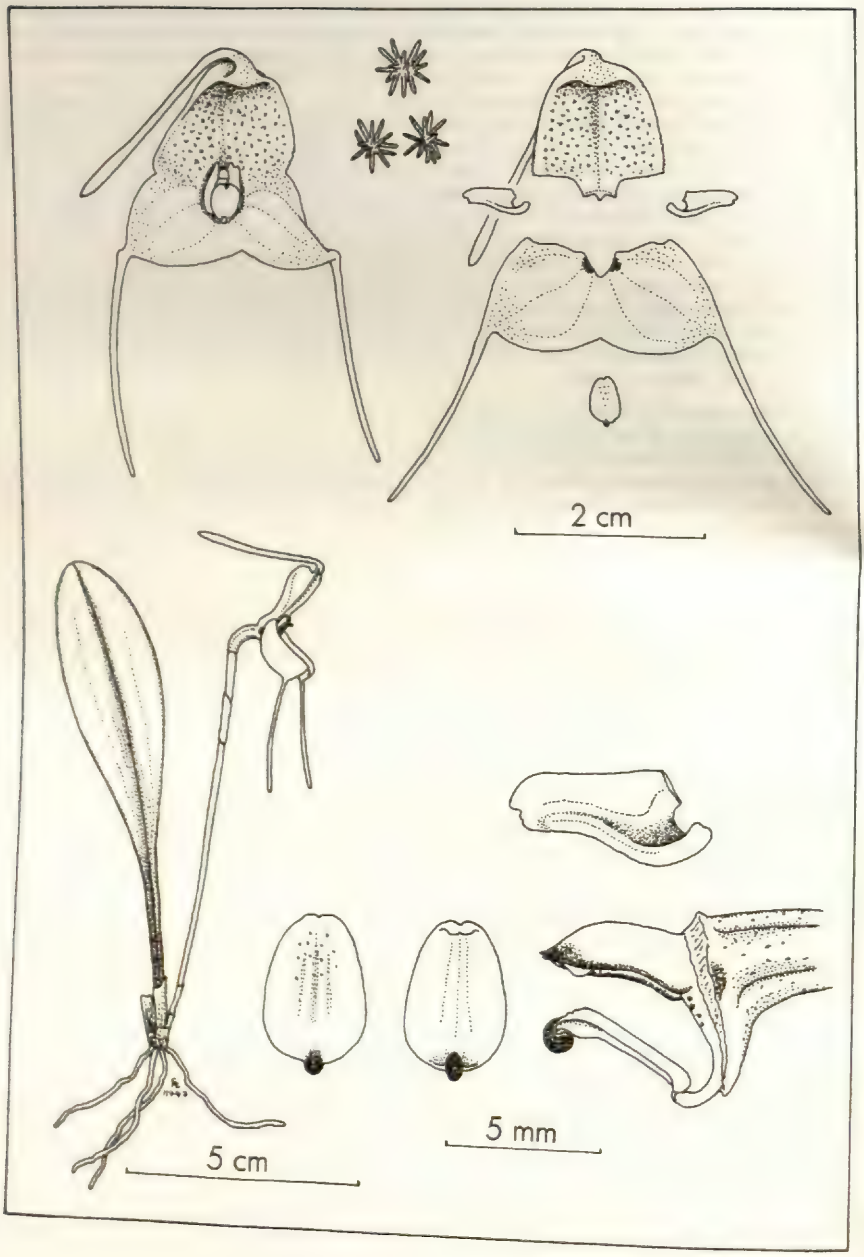


Plate 399. Masdevallia asterotricha

Masdevallia boliviensis Schltr., Repert. Spec. Nov. Regni Veg. 12: 483, 1913.

Ety.: Named for the country of Bolivia, where this species was discovered.

Syn.: *Masdevallia leucophaea* Luer & Vásquez, Phytologia 55: 198, 1984.

Ety.: From the Greek *leucophaeus*, "pale grey," referring to the color of the flower.

Syn.: *Masdevallia boliviensis* subsp. *leucophaea* (Luer & Vásquez) Luer, Lindleyana 3: 21, 1988.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-10.5 cm long including the petiole 1-3.5 cm long, the blade elliptical-obovate, subacute to obtuse, 1.4-1.8 cm wide, the base cuneate into the slender petiole. **Inflorescence** a single flower borne by an erect, slender peduncle 6-11 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 8-12 mm long; pedicel 13-22 mm long; ovary 5-6 mm long; **sepals** dull white to gray-white, more or less lightly dotted with purple externally, coarsely pubescent internally (glabrous in subsp. *leucophaea*), the dorsal sepal ovate, concave, carinate, 13-14 mm long, 8-11 mm wide, connate to the lateral sepals for 2 mm into a shallow, sepaline cup, the apex obtuse to subacute, contracted into a slender, erect, yellow-orange tail 3-3.5 cm long, the lateral sepals ovate, oblique, usually with the lateral margins revolute, 12-17 mm long, 8 mm wide expanded, the apices acute, contracted into slender tails similar to that of the dorsal sepal, connate 2 mm basally into a short mentum behind a transverse fold below the column-foot; **petals** white, sometimes dotted with purple, oblong, 6 mm long, 2 mm wide, the apex truncate, minutely apiculate, the labellar margin with a thick, longitudinal callus produced into a thick, obtuse, incurved tooth above the base; **lip** white, dotted with purple, erect, ovate, 4.5-5.5 mm long, 2.5-3 mm wide, narrowed above the middle to the narrowly obtuse, shortly recurved apex with a small, midline callus, the disc essentially featureless, the base subtruncate, hinged beneath to the column-foot; **column** white with purple margins, semiterete, 4 mm long, the foot 3 mm long, with a slender, incurved extension.

BOLIVIA: **La Paz**: Prov. of Sud Yungas, on mossy tree trunk in rain forest, Río Saujana (San Juán), alt. 2800 m, Oct. 1911, *Th. Herzog 2428* (Holotype: S); Sud Yungas, epiphytic in cloud forest between Inquisivi and Circuata, alt. 2500 m, collected by C. Luer, J. Luer & R. Vásquez, Jan. 1981, cultivated in Munich, Sept. 1986, *W. Königer WK-22* (K, LPB, M, MO, herb. H. Königer), C. Luer illustr. 11602; same collection, cultivated by Colomborquídeas, 25 Apr. 1988, *C. Luer 13301* (MO). Without locality, cultivated by D. Menato in Chulumani, 24 Jan. 1984, *C. Luer 9426* (holotype of *M. leucophaea*: SEL).

This species was first discovered by the professional collector Theodor Herzog in a remote valley in the Yungas of northern Bolivia in the early part of the twentieth century. It was described from dried material by Schlechter. It had not been seen again until plants were discovered growing in cultivation by Dino Menato in the province of Sud Yungas.

Masdevallia boliviensis is identified by the gaping, dull-white or light-grey flowers with a concave dorsal sepal and convex lateral sepals with revolute sides. In the typical *M. boliviensis* the sepals are coarsely pubescent within. In the taxon recognized as *M. leucophaea*, the sepals are totally glabrous. A comparison with plants with pubescent sepals fails to reveal any other significant difference.

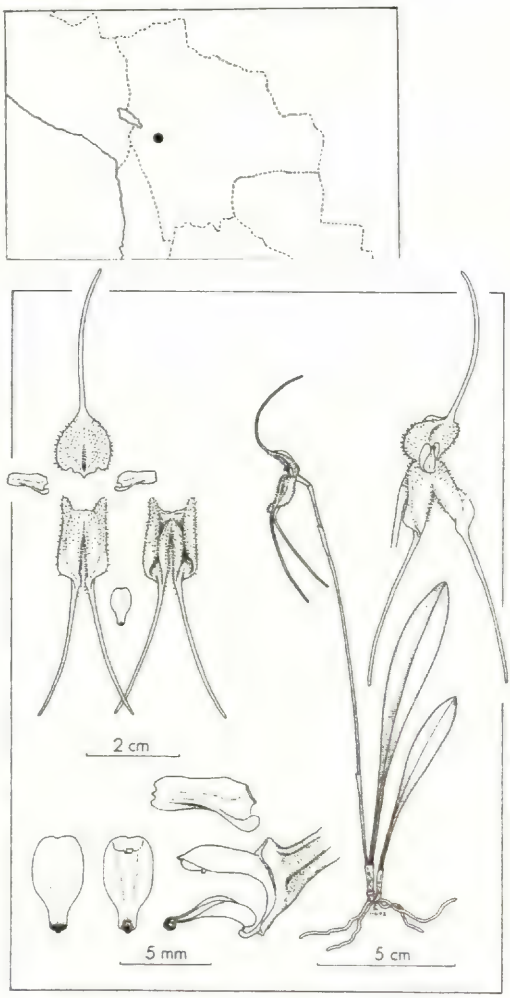


Plate 400. Masdevallia boliviensis

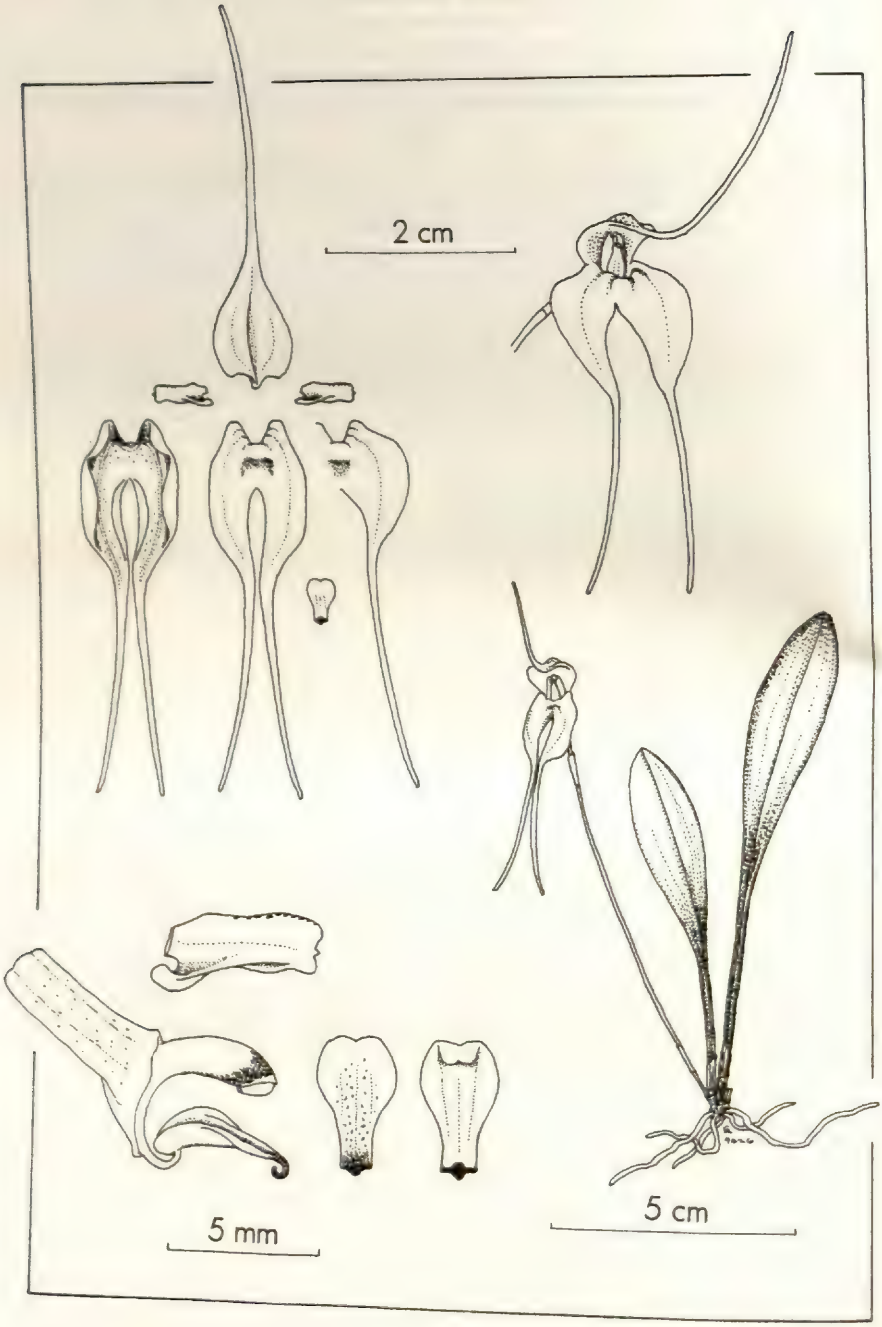


Plate 401. Masdevallia boliviensis
(subsp. *leucophaea*)

Masdevallia bottae Luer & Andreetta, Phytologia 47: 63, 1980.

Ety.: Named for Padre Angel Botta, Salesian missionary in Ecuador, co-discoverer of this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-9 cm long including a 1-3 cm long petiole, the blade elliptical, 1.5-2.5 cm wide, with the apex obtuse to rounded, the base cuneate into the slender, blackish petiole. **Inflorescence** a solitary flower borne by a slender, suberect peduncle 4-7 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 9-12 mm long; ovary 4-5 mm long; **sepals** pale yellow, yellow or light orange, glabrous, the dorsal sepal broadly ovate, cucullate, 13-14 mm long, 10-11 mm wide, connate 4 mm to the lateral sepals to form a short, wide-spread cup, the free portion rounded, concave, translucent white near the lateral angles, abruptly contracted into a slender, yellow-green, erect tail ca. 3.5 cm long, the lateral sepals broadly ovate, oblique, 10 mm long, 9-10 mm wide, connate 2-3 mm over a transverse fold below the column-foot, with a small, dark purple spot at the base, the free portions with more or less reflexed margins, the apices obtuse to rounded, abruptly contracted into deflexed tails similar to that of the dorsal sepal; **petals** white, erect, oblong-cuneate, 5-6.5 mm long, 2-3 mm wide, the truncate apex tridentate, the labellar margin with a thick, incurved carina ending in a prominent, retrorse, rounded tooth; **lip** white, dotted with dark purple, erect, oblong, 4.5 mm long, 3.5 mm wide, the truncate apex dark purple with a deflexed, midline lobule, the truncate base hinged beneath, the disc with a pair of low, longitudinal elevations; **column** white, suffused with purple, semiterete, 5 mm long, the foot 2.5 mm long with a slender, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest near Río Calagrás, alt. 1600 m, 19 Sept. 1980, *C. Luer, J. Luer, A. Andreetta et al. 5502* (Holotype: SEL); same locality, Jan. 1978, *A. Andreetta, M. Portilla & A. Botta s.n.* (SEL); Valle del Paute, alt. 2200 m, collected by A. Andreetta & M. Portilla, cultivated 16 May 1988, *C. Luer 13371, 13640* (MO). **Zamora-Chinchipe**: between Loja and Zamora, collected by B. Malo, cultivated at Tarqui, 27 Sept. 1980, *C. Luer 5560* (SEL).

This little species, first discovered by fathers Angel Andreetta and Angel Botta, is apparently restricted to the eastern slopes of the Andes of southern Ecuador. It is one of many very similar, interrelated species associated with *M. xanthina* that are widely distributed through all three cordilleras of Colombia into Bolivia.

Masdevallia bottae is distinguished from its numerous allies by the small, whitish flowers variously suffused with yellow or orange and with a very small, indistinct "eye-spot" at the base of the sepals; by the thick, broadly triangular marginal callus of the petals that extends beyond the base; and by the smaller, proportionately broader, flat, oblong, truncate lip. However, the above differentiating criteria are variable, making positive identification sometimes uncertain.

Also occurring in southeastern Ecuador are two other superficially similar species. *Masdevallia eucharis* is distinguished from *M. bottae* by the convex center of an obovate lip that is narrowed at the apex. It appears similar to the lips seen in subsection *Oscillantes*. *Masdevallia cylix* is distinguished by the sepals being more deeply connate into a suborbicular flower with a deeply concave sepaline cup. The lip is ovate and narrowed toward the apex.

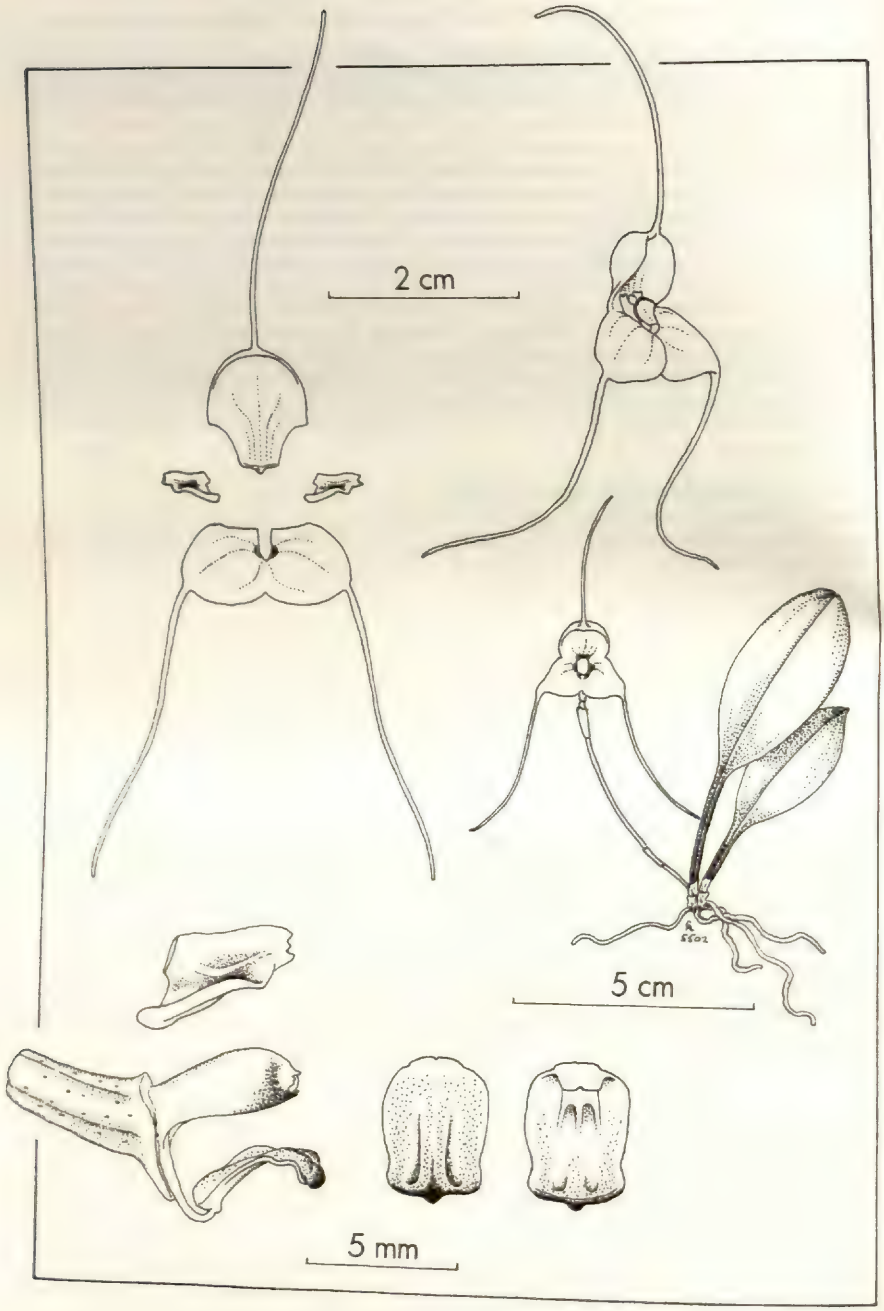


Plate 402. Masdevallia bottae

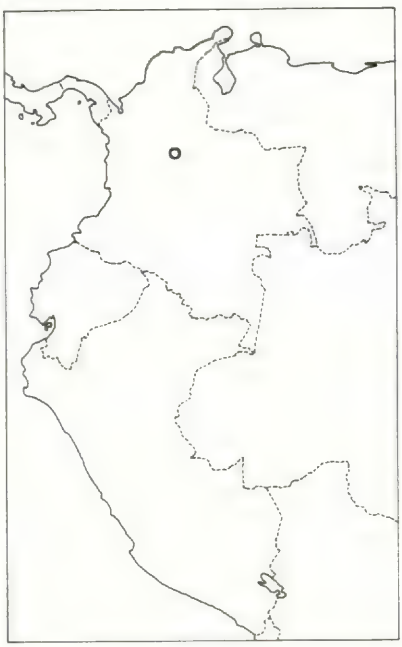
Masdevallia brockmuelleri Luer, sp. nov.

Ety.: Named for Herr Brockmüller from whom Herr Königer received the plant.

Inter species subsect. *Caudatae* pedunculo gracili folio acuto longiore, sepalis lateralibus incurvis margine inferiore undulata, et labello oblongo obtuso con callo super marginem distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-10 cm long including the petiole 2.5-4 cm long, the blade narrowly elliptical, acute, 1-1.6 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 7-11 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 11 mm long; pedicel 15 mm long; ovary 6 mm long; **sepals** glabrous, with the margins minutely erose, the dorsal sepal yellow, elliptical, concave, 14 mm long, 8 mm wide, connate to the lateral sepals for 3 mm to form a shallow, gaping, sepaline cup, the apex rounded, contracted into a slender, forwardly directed yellow tail 3.3 cm long, the lateral sepals yellow with a brown spot at the base, suboblong, incurved, oblique, 13 mm long, 6.5 mm wide, connate 1.5 mm to form a shallow mentum below the column-foot, the apices subacute, contracted into slender, yellow tails 3.2 cm long; **petals** yellow-white, suboblong, 5.5 mm long, 1.5-2 mm wide, the apex truncate, tridentate, the labellar margin with a longitudinal callus, shallowly winged above the middle, ending in a thick, obtuse, retrorse process at the base; **lip** white, suffused with purple-brown around the apical callus, oblong, 4.5 mm long, 2.25 mm wide, the apex shallowly, broadly bilobed, with the margin acutely recurved, the disc with a pair of low, longitudinal calli on the middle third and a small, central callus near the apical margin, the base subcordate, hinged beneath; **column** white, suffused with purple, semiterete, 4.5 mm long, the apex hooded, bidentate, the foot 3 mm long including the slender, incurved extension.

COLOMBIA: Without collection data, obtained from Brockmüller in 1979, cultivated by W. Königer, 19 Aug. 1984, *C. Luer 10409* (Holotype: MO).



In 1979, a plant of this species was obtained by W. Königer from a hobbyist named Brockmüller, but without collection data except for Colombia. The morphology of the flower suggests that the closest affinities are species from the Eastern Cordillera.

Among the species of section *Caudatae*, *M. brockmuelleri* is distinguished by the narrowly elliptical leaf; a slender peduncle exceeding the leaf; a yellow flower with incurved, oblong lateral sepals with a concave and convex margin; a short, thick tooth at the base of the petal; and an oblong lip with a small callus a short distance from the apical margin. A small, apical callus a short distance from the margin is seen also in *M. caudata* and its some of its affinities.

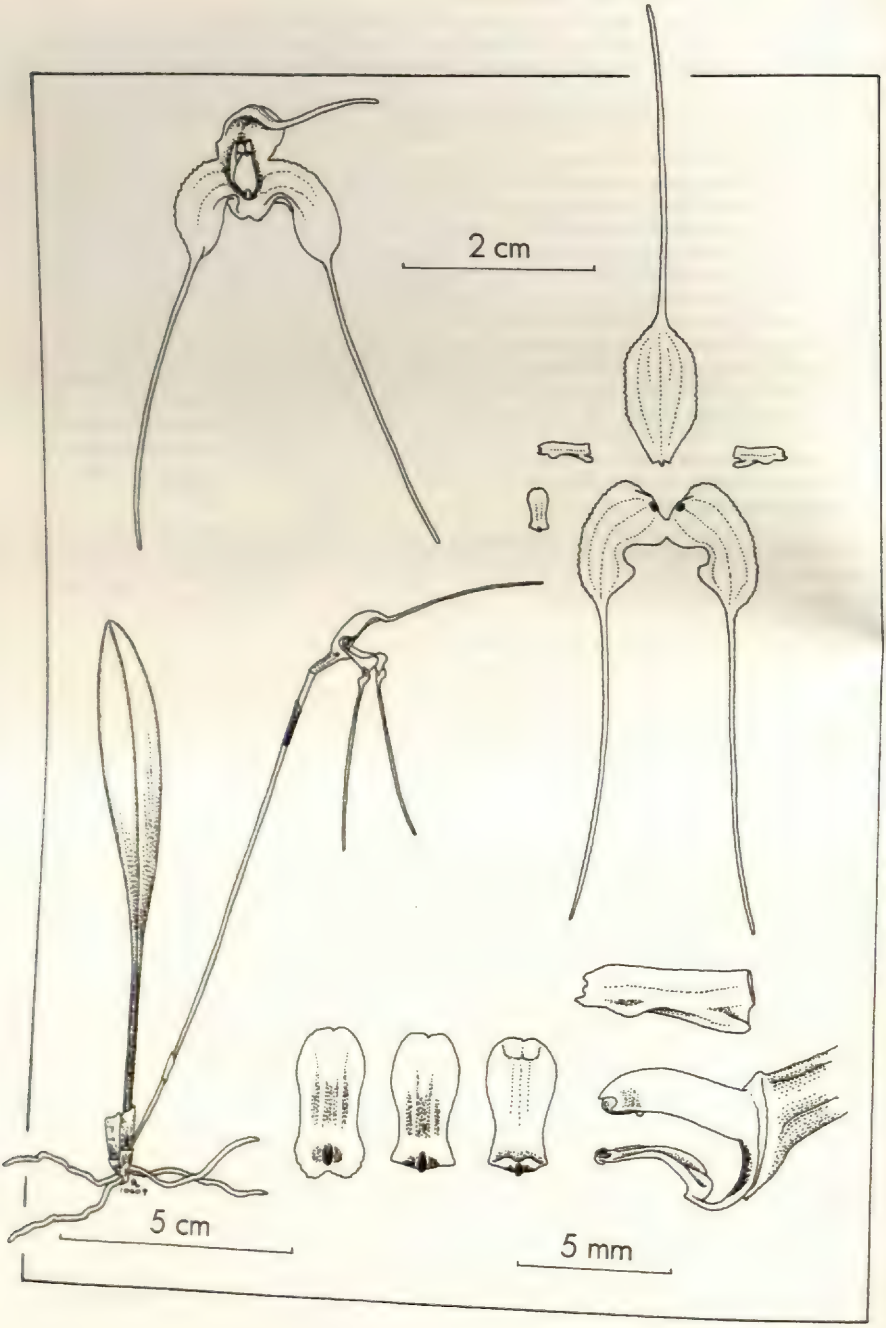


Plate 403. Masdevallia brockmuelleri

Masdevallia caudata Lindl., Gen. Sp. Orch. Pl. 193, 1833.

Ety.: From the Latin *caudatus*, "with tails," referring to the long-caudate sepals.

Syn.: *Masdevallia tricolor* Rchb.f., Linnaea 22: 818, 1849.
Ety.: From the Latin *tricolor*, "with three colors," referring to the white, yellow and rose flowers.

Syn.: *Masdevallia shuttleworthii* Rchb.f., Gard. Chron. n.s. 3: 170, 1875.
Ety.: Named for Robert James Shuttleworth, collector for W. Bull, who collected this species.

Syn.: *Masdevallia shuttleworthii* var. *xanthocorys* Rchb.f., Gard. Chron. 17(1): 366, 1882.
Ety.: From the Greek *xanthocorys*, "a yellow helmet," referring to the dorsal sepal.

Syn.: *Masdevallia caudata* var. *shuttleworthii* (Rchb.f.) Rchb.f., Gard. Chron. ser. 3, 5: 200, 1889, nomen nudum.

Syn.: *Masdevallia caudata* var. *gudotii* Rchb.f., Gard. Chron. ser. 3, 5: 200, 1889, nomen nudum.
Ety.: Named for Justin Goudot who first discovered this species.

Syn.: *Masdevallia caudata* var. *xanthocorys* (Rchb.f.) Veitch, Man. Orch. Pl. pt. 5: 29, 1889.

Syn.: *Masdevallia cucutillensis* Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 127, 1922.
Ety.: Named for the community of Cucutilla near where the species was collected.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, blackish, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-12 cm long including the petiole 1.5-3.5 cm long, the blade elliptical, subacute to obtuse, 1.5-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary, showy flower, borne by a slender, erect peduncle 5-9 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 8-12 mm long; pedicel 12-20 mm long; ovary 6-8 mm long; **sepals** glabrous, the dorsal sepal white to yellow, veined, dotted or suffused with purple or brown, obovate, concave, 25-30 mm long, 14-18 mm wide, connate to the lateral sepals for 11-15 mm to form a shallow, gaping, sepaline cup, the apex rounded, abruptly contracted into an erect, slender, yellow or purple tail 4-7 cm long, the lateral sepals white, usually diffusely dotted with purple, ovate, oblique, 17-22 mm long, 11-16 mm wide, connate 5-6 mm to form a deep, conical mentum below the column-foot, the apices subacute, contracted into slender, yellow or purplish tails 4-7 cm long; **petals** white, suboblong, 5-6 mm long, 1.5-2.5 mm wide, the apex truncate, tridentate, the labellar margin with a thick longitudinal callus, winged above the middle, ending in a thick, obtuse, retrorse process above the base; **lip** white, diffusely dotted with purple, elliptical-oblong, reflexed above the middle, 5.5-6 mm long, 2.5-3.75 mm wide, the apex broadly rounded, the disc with a close pair of low, longitudinal calli and a single, central callus distant from the apical margin, the base subcordate, hinged beneath; **column** white, suffused and dotted with purple, semiterete, 5 mm long, the apex hooded, the foot equally long including the slender, incurved extension.

COLOMBIA: **Cundinamarca**: near San Fortunato, ca. 1831, flowering in June, *J. Goudot s.n.* (Holotype: K, tracing at W); between Agua Larga and Fusagasugá, 1874, *R. Shuttleworth s.n.* (K, W); Zipaquirá, above Pacho, alt. 1800-2400 m, Jan. 1892, *F.C. Lehmann 7031* (AMES); Fusagasugá, 15 Aug. 1876, *R. Shuttleworth s.n.* (W); Fusagasugá, alt. 1800-2400 m, *F.C. Lehmann s.n.* (K); Fusagasugá, alt. 1700 m, 27 Dec. 1938, *J. Renz 3607* (BAS); Fusagasugá, alt. 2400 m, collected by G. de Guaqueta, 1975, cultivated by M. & O. Robledo at La Ceja, 1977, *R. Escobar 584A* (JAUM); Fusagasugá, alt. 6,600 ft., *H. Karsten s.n.* (W); above Fusagasugá, alt. 2200 m, collected by E. Valencia, 1986, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13241* (MO); above Pacho, alt. 1800-2400 m, Jan. 1882, *F.C. Lehmann 7031* (K); western slopes of Sabana de Bogotá, alt. alt. 2000-2600 m, 29 Jan. 1883, *F.C. Lehmann 2639* (BM, G, LE); San Antonio de Tena, Santandercito, alt. 2200-2500 m, collected by S. Restrepo & P. Ortiz, 1973, cultivated by O.J. Arango at La Estrella, Oct. 1977, *R. Escobar 584B* (JAUM). **Norte de Santander**: Munic. of Toledo, Alto de Mefué, alt. 2500 m, 12 May 1984, *C. Luer, R. Escobar & E. Valencia 10286* (MO); Cucutilla, ca. 1879, alt. 2700-2800 m, *W.*

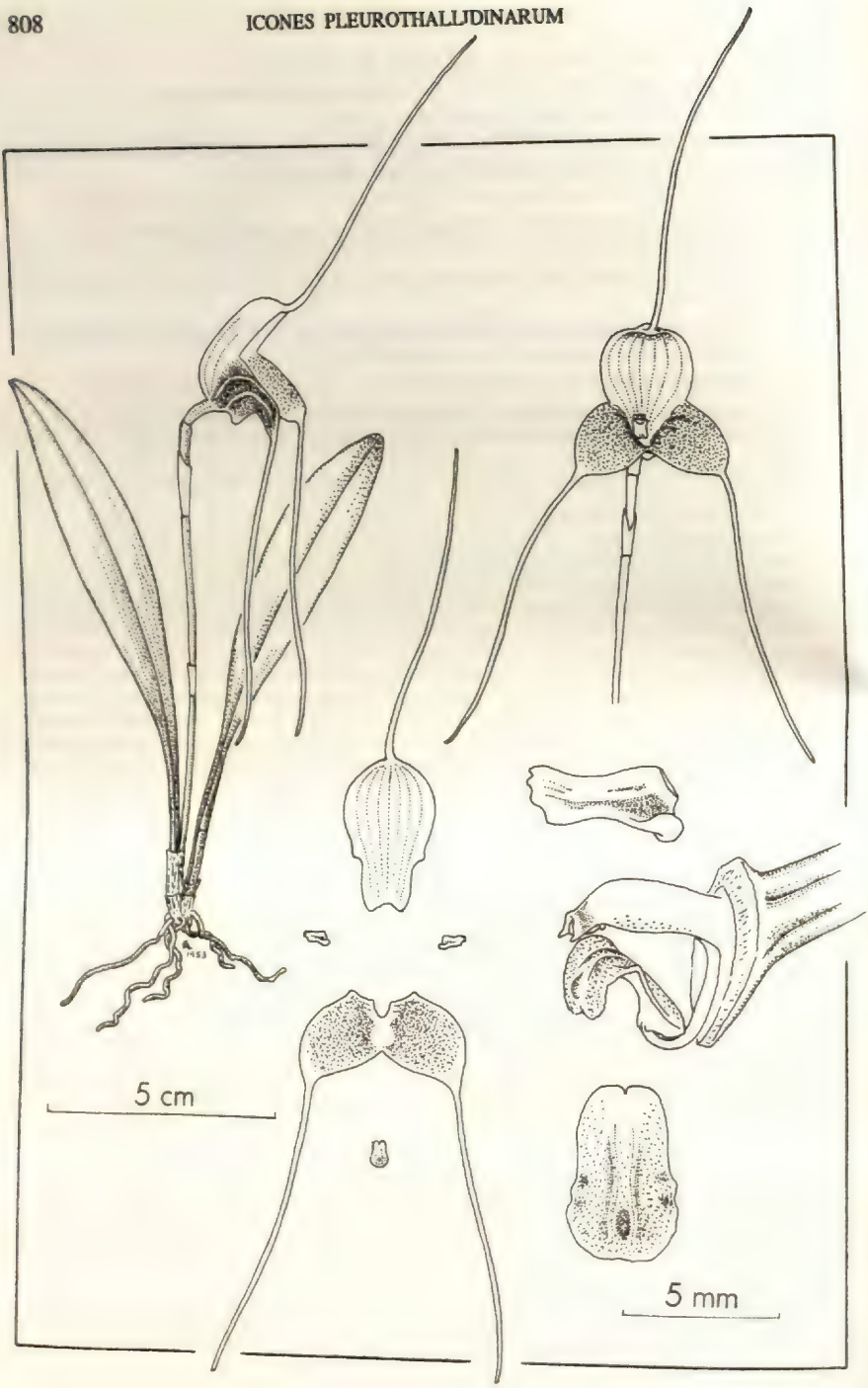


Plate 404. Masdevallia caudata

Kalbreyer 1156 (holotype of *M. cucutillensis* destroyed at B); between Santa Barbara and Guaca, alt. 2850 m, 16 May 1982, *C. Luer & R. Escobar 7869* (SEL); Cachirí, alt. 2600 m, collected by E. Valencia, cultivated at Colomborquídeas, 6 July 1996, *C. Luer 17959* (MO). **Quindió**: between Los Volcancitos and Paramillo, alt. 1670 m, Feb. 1843, *J. Linden 1479* (K). Without locality, 1851-1857, *J. Triana s.n.* (P); without locality, collected for Mr. Bull, *R. Shuttleworth s.n.* (holotype of *M. shuttleworthii*: W); without locality, flowered in the collection of Sir Trevor Lawrence, Burford Lodge, 1882, (holotype of var. *xanthocorys*: W).
VENEZUELA: **Mérida**: alt. 7,500 ft., 1847, *L. Schlim 1636* (holotype of *M. tricolor*: W; isotypes: BR, G, K, P); La Mucuy, alt. 2400 m, Oct. 1956, *L. Aristeguieta 2634* (AMES, VEN); Selva de Palmira, alt. 2400 m, 1 Sept. 1921, *A. Jahn 529* (VEN); above La Mucuy, alt. 2100 m, *V. Vareschi, F. Pannier & W. Schwabe 1355* (VEN); Montaña de La Mucuy, alt. 2600 m, 13 Aug. 1958, *P. Pannier & W. Schwabe 1376* (AMES, VEN). **Táchira**: Fundación and Río Quinimari, alt. 2600 m, 16 May 1951, *J. Renz 7025* (BAS); below Páramo La Negra, alt. 2700 m, *G.C.K. Dunsterville 1112*.

This species, some clones of which are the most beautiful of the genus, was first collected about 1831 near Bogotá in the Eastern Cordillera of Colombia by the French botanist M. Justin Goudot who had been employed to establish scientific organizations in Colombia. Lindley described *M. caudata* simultaneously with *M. infracta* for the second and third species to be recorded in the genus. *Masdevallia caudata* has subsequently proved to be relatively frequent and widely distributed in the Eastern Cordillera of Colombia and adjacent westernmost Venezuela. Some of the most colorful variations are found near Fusagasugá southwest of Bogotá from whence Shuttleworth, in the employ of Mr. William Bull of Chelsea, succeeded in sending the first living plants to Europe in 1874. Believing this variation to be specifically distinct, Reichenbach honored Shuttleworth by naming it *M. shuttleworthii*.

A yellow-colored variation, described by Reichenbach as var. *xanthocorys*, appeared in the collection of Sir Trevor Lawrence in 1882. Other smaller or less colorful variations acquired several additional names. Fine variations of *M. caudata* were some of the first to be used as a parent in hybridization.

Typically, the large, solitary flower, sometimes produced in profusion, is widely spread with the rounded, yellowish dorsal sepal concave and conspicuously striped with seven to nine purple lines. The lateral sepals are usually diffusely dotted with red-purple. Forms lacking the purple pigment appear yellow with brown markings. All three sepals are furnished with a long, slender tail. The column, petals, and lip stand erect and exposed in the center of the flower. The callus of the petals is well-developed as a thin wing above the middle and a large, thick, retrorse process above the base. The lip is broadly oblong with the apical callus equidistant from the lateral and apical margin. The column has an elongated margin of the apex.

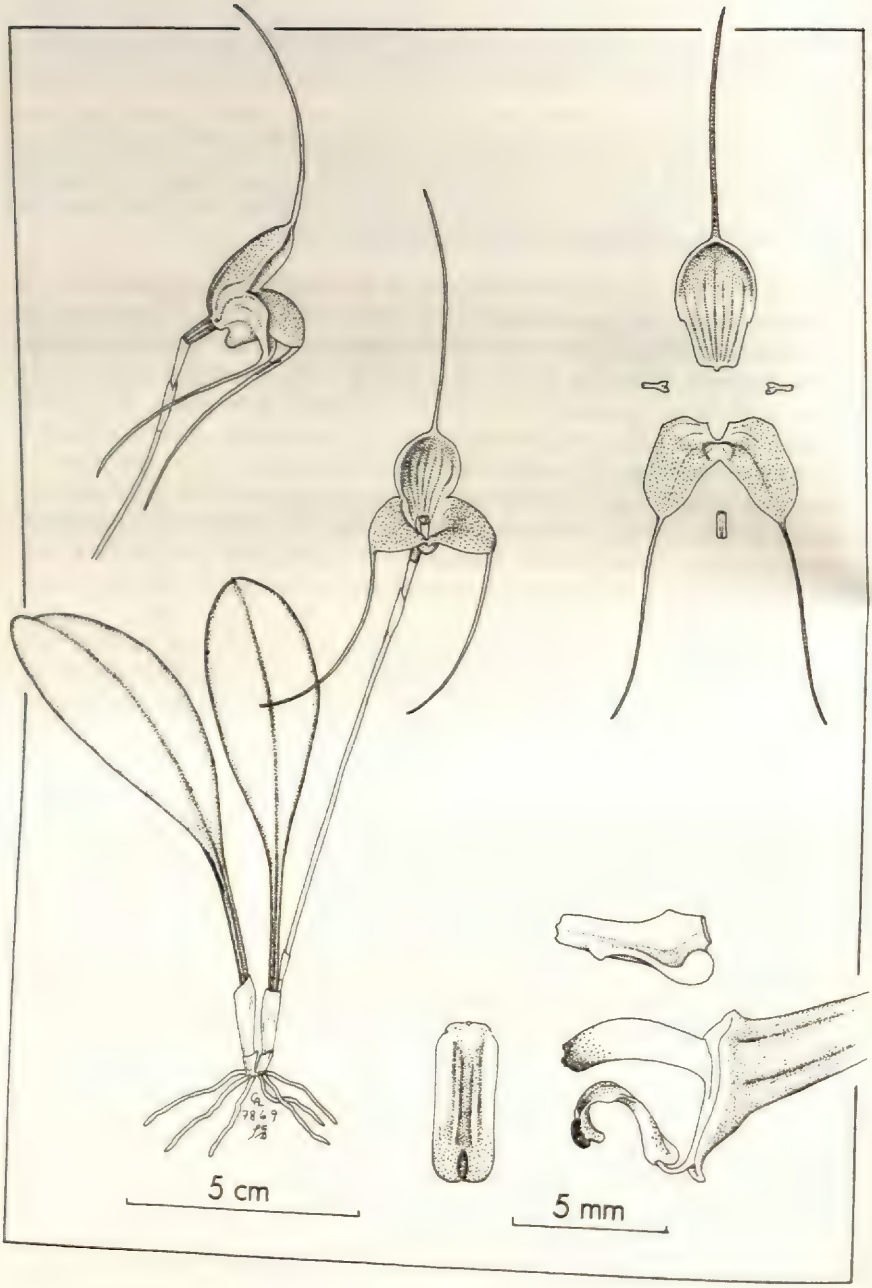


Plate 405. Masdevallia caudata

Masdevallia cloesii Luer, Lindleyana 8: 39, 1993.

Ety.: Named in honor of Patrick Cloes of Hasselt, Belgium, discoverer of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, blackish, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3-6.5 cm long including a blackish petiole 1-2 cm long, the blade elliptical, subacute to obtuse, 1.4-2 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 5-6.5 cm long, with a bract near the base, from near the base of a ramicaul; floral bract tubular, 10 mm long; pedicel 14 mm long; ovary 5 mm long; **sepals** rose, whitish toward the bases of the lateral sepals, glabrous, the dorsal sepal obovate, shallowly concave, 15 mm long, 9 mm wide, with the margins cellular erose, connate to the lateral sepals for 3 mm to form a gaping flower, the apex rounded, abruptly contracted into a slender, pinkish tail 2.5 cm long, the lateral sepals expanded, ovate, obtuse, oblique, 13 mm long, 8 mm wide, connate 3 mm, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 2 mm wide, the apex subtruncate, retuse, obscurely lobed, the labellar margin with a longitudinal wing ending in a thick, retrorse process above the base; **lip** white, suffused with rose at the apex, oblong, arcuate, 5.5 mm long, 2.5 mm wide, the apex rounded with a small, midline callus, the disc superficially channeled, the base subtruncate, thickened, hinged beneath; **column** white, semiterete, 4 mm long, the foot with a slender, incurved extension, 2.5 mm long.

PERU: **Amazonas**: epiphytic, between Pomacochas and Río Rioja, alt. 2000 m, July 1991, cultivated at Hasselt, Belgium, Nov. 1991, *P. Cloes 852030* (Holotype: MO), C. Luer illustr. 15529; below Pomacochas, July 1996, collected and cultivated by *K. Tokach P-50* (MO).

This species is similar to the species of the widely distributed *M. xanthina*, but from all the variations it is readily distinguished by the rose-colored flowers. The sepals appear to be basically white and most intensely suffused with rose or rose-purple in the central portions, with the apices and bases approaching white. No "eye-spot" is present at the bases of the lateral sepals. There is very little else to distinguish the species except that the dorsal sepal is not as deeply concave as it is in variations of *M. xanthina*. The petals and lip are within the variations allowed for *M. xanthina*. Perhaps it is little more that an unusual color-variation, but the appearance is so distinct that a different pollinator is no doubt employed.

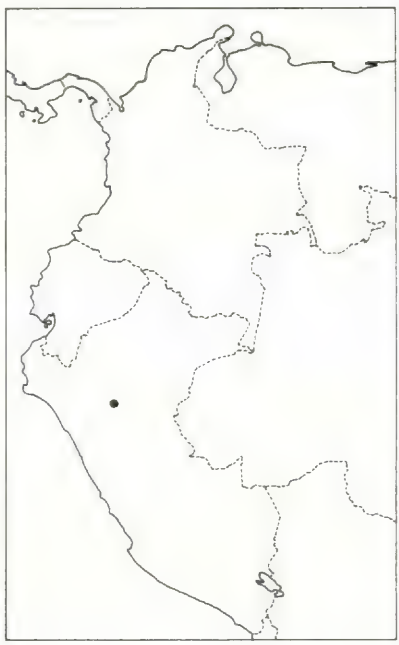
Masdevallia cordeliana Luer, sp. nov.

Ety.: Named in honor of Cordelia Head Webb noted for cultivation and hybridization of *Masdevallia*.

Species haec *M. ludibundae* Rchb.f. similis, sed ovario verrucoso, foliis longipetiolatis multimajoribus, sepalorum lateralium lateribus revolutis ad basim profunde connatis, et labello ad apicem concavo.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 3.5-4 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 12-13 cm long including a petiole 3 cm long, the blade elliptical-oblong, obtuse, 2.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, erect peduncle 10 cm long, with a bract near the base, from the low on the ramicaul; floral bract tubular, 10 mm long; pedicel 15 mm long; ovary verrucose, 5 mm long; **sepals** yellowish, minutely subverrucose, the dorsal sepal oblong-obovate, concave, carinate, arcuate-cucullate, 22 mm long, 9 mm wide, connate to the lateral sepals for 1.5 mm to form a gaping sepaline cup, the apex obtuse, contracted into a deflexed, slender, yellowish tail ca. 33 mm long, the lateral sepals triangular, 15 mm long, 10 mm wide, connate basally for 5 mm, the apices acute, contracted into slender tails that of the dorsal sepal; **petals** white, suboblong, 7 mm long, 1.5-3.5 mm wide, the apex retuse, the labellar margin with a longitudinal callus ending in a thick, incurved process at the base; **lip** elliptical-obovate, 5 mm long, 3.5 mm wide, the apex rounded and concave, the margins thin and slightly incurved, the disc three veined with the central vein ending in a small, round callus, the base obtuse, shortly cleft, hinged beneath; **column** semiterete, 5 mm long, the foot 4 mm long with a long, incurved extension.

PERU: **San Martín**: Prov. Tocache, Dist. Shunté, Tambo de Paja, alt. 2500 m, collected by Teobaldo Trigoso García, flowered in cultivation Sept. 2001 in the Vivero de Santa Clara of *Manuel Arias Silva s.n.* (Holotype: MO), C. Luer illustr. 20102.



Although superficially similar to the Colombian *M. ludibunda*, this species has no very close relatives. The large, oblong leaves are long-petiolate. The ramicauls are nearly as long, and the peduncle arises a short distance above the base to bear the flower near the middle of the leaf. The dorsal sepal, distinctly longer than the lateral sepals, is cucullate with the tail directed forward. The sides of the lateral sepals are reflexed. The lip stands loosely erect in the center on a thin strap. The lip is thin and concave in the rounded distal quarter, and convex below.

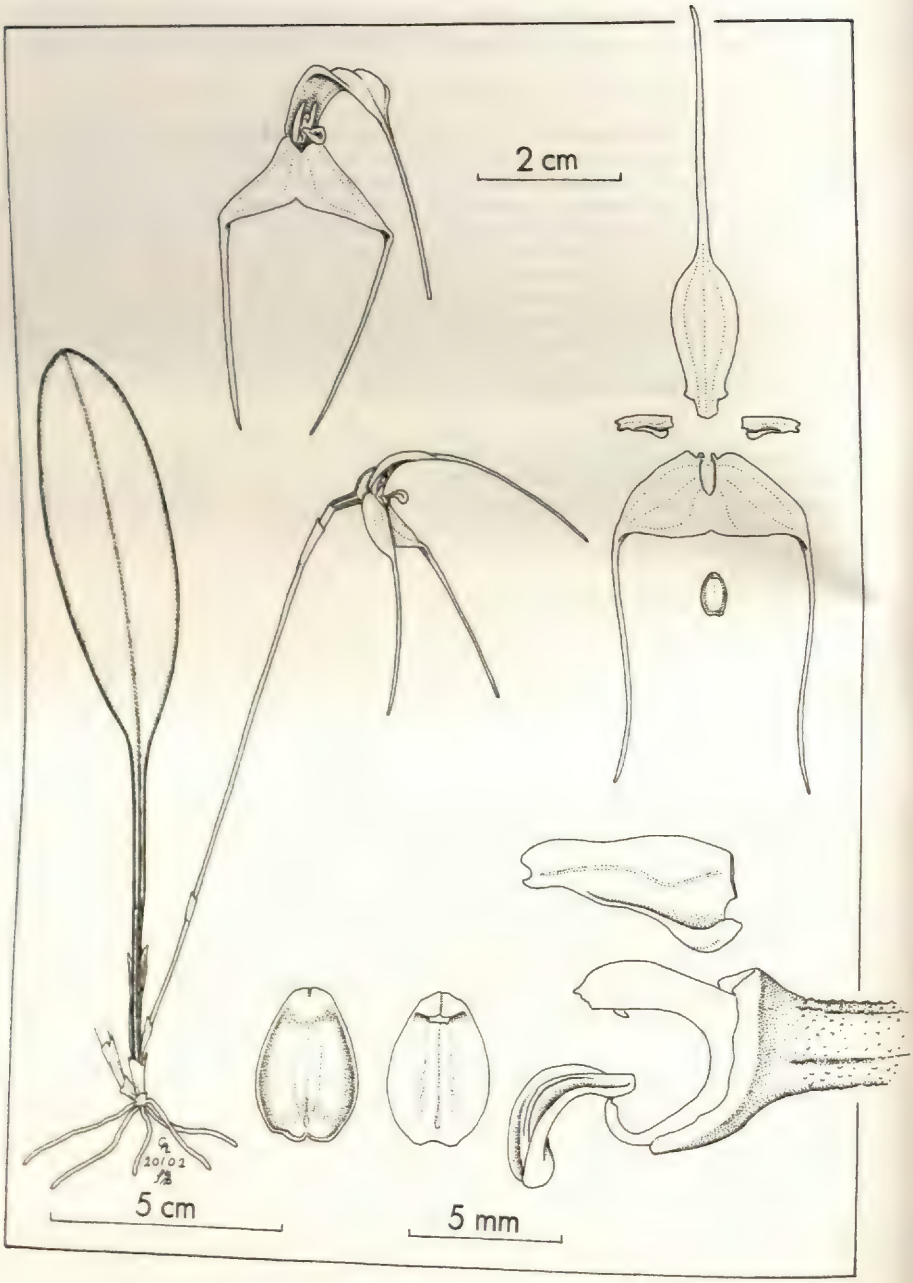


Plate 407. Masdevallia cordeliana

Masdevallia cyclotega Königer, Die Orchidee 32: 63, 1981; emend. 36: 87, 1985.

Ety.: From the Greek *cyclos*, "circular" and *tegos* "a roof," referring to the round dorsal sepal.

Syn.: *Masdevallia mijahuangae* D.E.Benn., Publ. Mus. Hist. Nat. UNMSM (B)37: 1, 1993.

Ety.: Named in honor of the collector, Felix Mijahuanga.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-4.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 8-13 cm long including the petiole 2.5-4 cm long, the blade elliptical, subacute, 1.5-2.5 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 12-14 cm long, with a bract, below the middle, from low on the ramicaul; floral bract thin, tubular, 10-12 mm long; pedicel 10-25 mm long; ovary 8 mm long; **sepals** white, suffused with rose above the middle, yellow toward the base, the blade of the dorsal sepal obovate, 15 mm long, 13 mm wide, narrowed basally and connate to the lateral sepals for 5 mm to form a shallow, gaping cup, the rounded free portion horizontal, abruptly contracted into a slender, olive green, erect tail 3 cm long, the lateral sepals obovate, oblique, 15 mm long, 11 mm wide, connate for 8 mm to form a lamina with a shallow mentum, the obtuse apices contracted into slender tails 2.5 cm long; **petals** white, oblong, 6-7 mm long, 2.5-3.5 mm wide, the apex truncate, obscurely lobulate, the labellar half longitudinally callous ending in a broad, retrorse tooth at the base; **lip** white, finely dotted with purple medially, ovate-oblong, 5.5 mm long, 3.25 mm wide, slightly narrowed above the middle, the apex yellow-green, obtuse, with a low callus in the middle, the base truncate, hinged below; **column** white, dotted with purple, semiterete, 4.5 mm long, the foot 3 mm long with a slender, incurved extension.

PERU: **Junín**: above Huasa Huasi, alt. 3000 m, 1978, *J. Meza T. s.n.* (Holotype: SEL; clonotype: K); same collection, cultivated in Munich by *W. Königer 80* (K, M, MO, SEL, USM, Herb. H. Königer); same collection, cultivated by W. Königer in Munich, Germany, 18 May 1980, *C. Luer 5246* (SEL); same area, alt. 2900 m, Aug. 1982, *W. Königer, H. Königer & M. Arias K-69b* (M, MO, W, Herb. H. Königer); same area, 3 Aug. 1992, collected by F. Mijahuanga, *D. Bennett 5678* (holotype of *M. mijahuangae*: USM). Without collection data, obtained from M. Arias, cultivated by J & L Orchids, Easton, CT, 1293-439, Dec. 1993, *C. Luer 17071* (MO).

The habitat of *M. cyclotega* is in the high, forested, fog-enshrouded mountains that surround the ancient town of Huasa Huasi in central Peru, and in compamy with *M. uniflora*, which already had been discovered 200 years before.

Masdevallia cyclotega is distinguished by the long-pedunculate, bright rose flower with a round dorsal sepal and deeply connate lateral sepals. It has a fragrance of ripe raspberries.

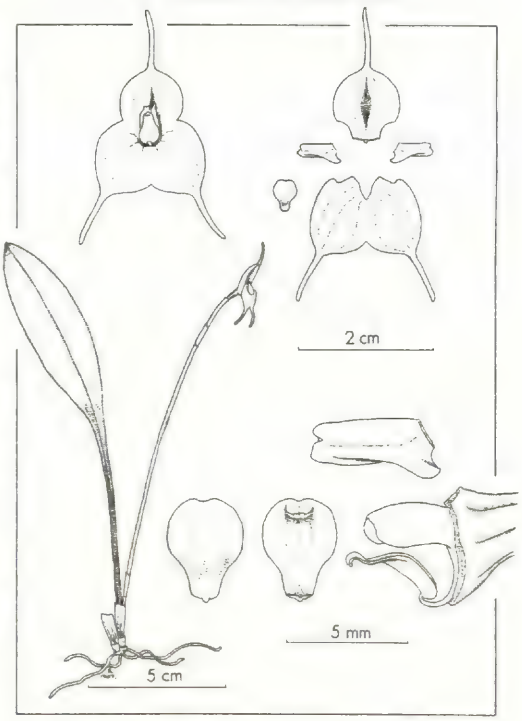


Plate 408. Masdevallia cyclotega

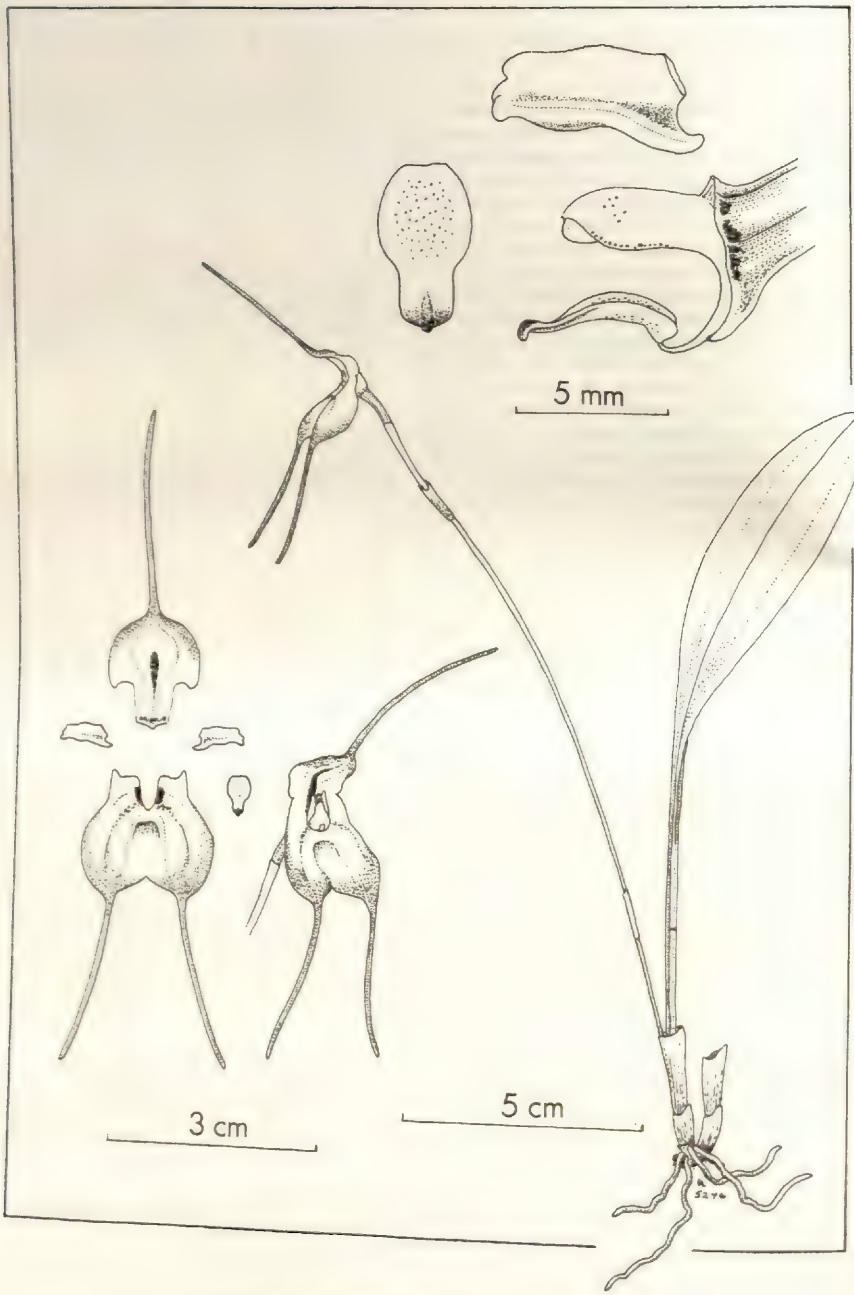


Plate 409. Masdevallia cyclotega

Masdevallia cylix Luer & Malo, Lindleyana 3: 195, 1988.

Ety.: From the Greek *kylix*, "a cup," referring to the sepaline cup as compared to the more or less flat flowers of commonly seen in subsection *Caudatae*.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 0.5-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-7 cm long including the petiole 1.5-3 cm long, the blade elliptical, subacute, 1.2-1.5 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4-5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 8-12 mm long; ovary 3-5 mm long; **sepals** glabrous, unicarinate externally, with the free margins microscopically erose, the dorsal sepal pale yellow, red-brown down the center, obovate, 12-15 mm long, 9-10 mm wide, connate to the lateral sepals for 5-7 mm to form a campanulate, sepaline tube, the apex rounded, abruptly contracted into an erect or reflexed, slender, yellow-green tail 2-3.5 cm long, the lateral sepals white, suffused with red-brown near the edge of the sepaline cup, oblong-ovate, oblique, 12-14 mm long, 9-10 mm wide, connate 6 mm, the apices oblique, obtuse, more or less reflexed, contracted into slender, yellow-green tails similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less oblong, 4-5 mm long, 1.5-2.5 mm wide, the apex obtuse, bi- or tridenticulate, the labellar margin with a longitudinal winglike carina, produced into a large, thick, incurved process above the base; **lip** rose, elliptical-ovate, 4-5 mm long, 2.3 mm wide, the apex brown, narrowly rounded, with a marginal callus, the disc with a low pair of longitudinal calli, the base rounded, hinged beneath; **column** white, semiterete, 4-4.5 mm long, the foot 3 mm long including a long, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic on the eastern slope of the Andes, without exact locality, collected by B. Malo, cultivated at Tarqui, 25 May 1988, *C. Luer 13686* (Holotype: MO); Río Paute, alt. 2200 m, collected by A. Andreetta, Feb. 1988, cultivated at Paute, 12 Jan. 1989, *C. Luer 13857* (MO); imported without collection data, cultivated at Orchideeënkwekerij, Venhuizen, The Netherlands, by *Ton Sijm s.n.* (MO), C. Luer illustr. 18881.

Endemic in southeastern Ecuador, this species was first discovered growing in the company of *M. patriciana* by Benigno Malo. The slender-tailed sepals are glabrous and obtuse, and more or less similar to each other. The dorsal sepal is connate to the lateral sepals to just below the middle to create a gaping sepaline cup, deeper than usually seen in subsection *Caudatae*.

The dorsal sepal is suffused with pale yellow with a conspicuous reddish purple suffusion down the center. The lateral sepals are pinkish white, lightly suffused with red at the orifice of the tube. The large-toothed petals, lip and column stand erect within the cup. The large, retrorse tooth of the petal is typical for the subsection. The lip is flat but with a longitudinal pair of calli that begin below the apex.

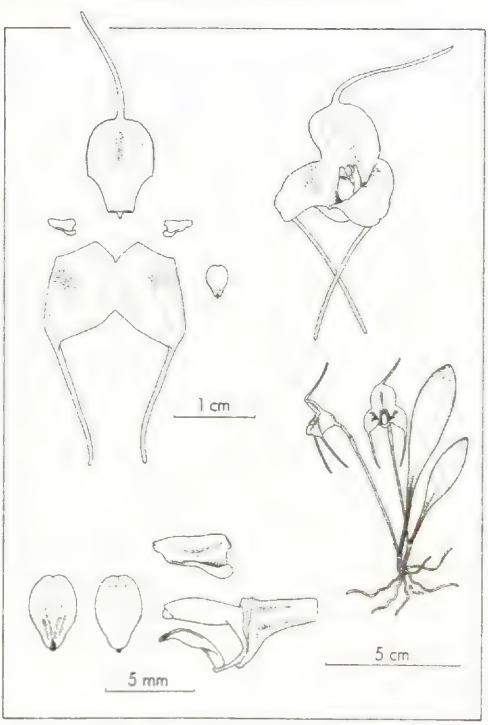


Plate 410. Masdevallia cylix

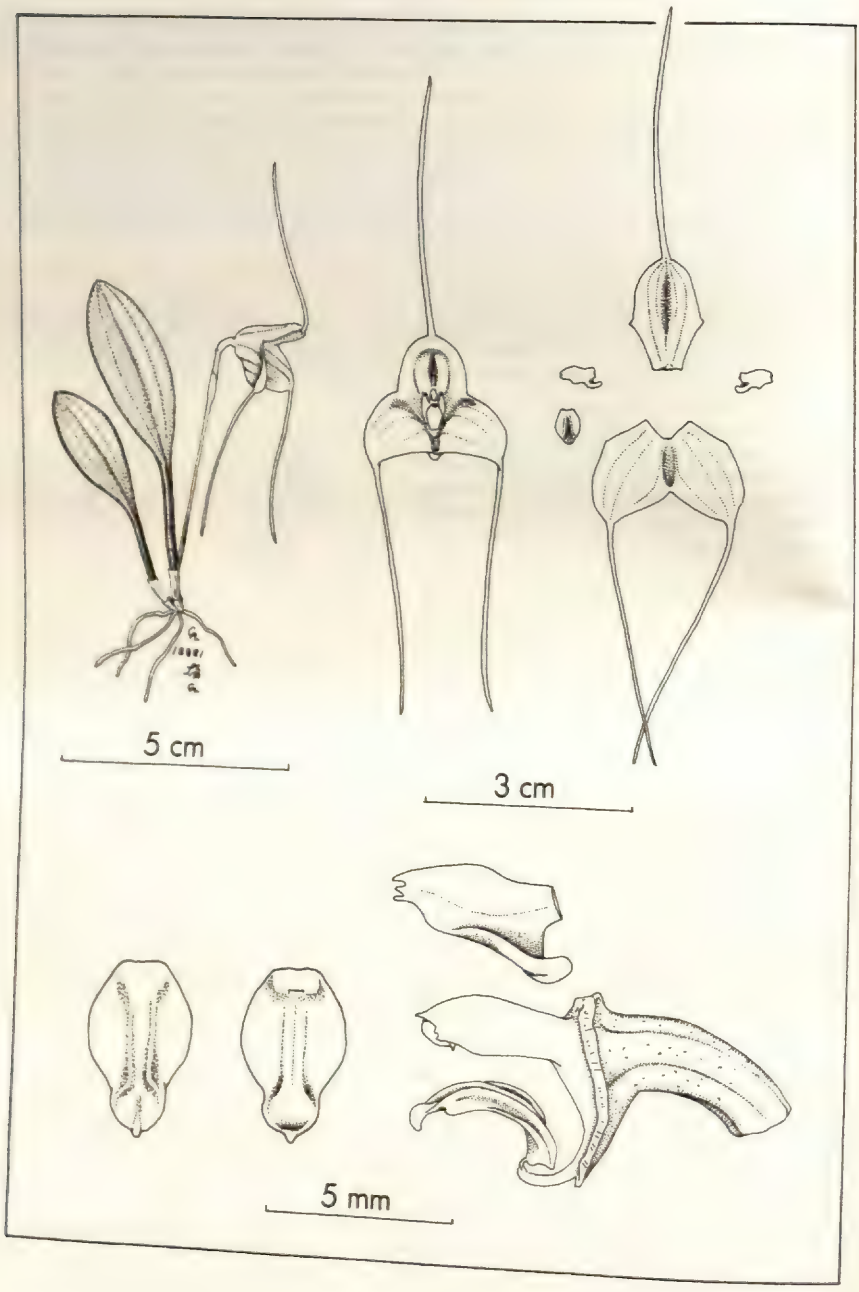


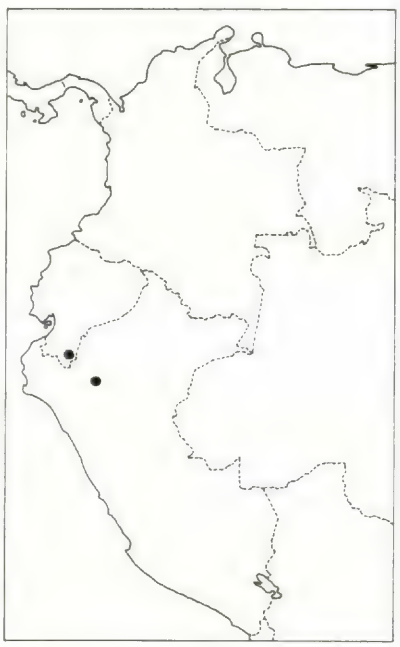
Plate 411. Masdevallia cylix

Masdevallia decumana Königer, Die Orchidee 33: 101, 1982; emend. 36: 87, 1985.

Ety.: From the Latin *decumanus*, "of a large size," referring to the size of the flower in comparison to the size of the plant.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 3.5-5 cm long including the petiole 1-2 cm long, the blade elliptical, 1.7-2 cm wide, the apex obtuse to rounded, the base cuneate into the petiole. **Inflorescence** a large, colorful, solitary flower, borne by a slender, suberect peduncle 3-5 cm long, with a bract near the base, from low on the ramicaul; floral bract 8-10 mm long; pedicel 9-10 mm long; ovary 4-5 mm long; **sepals** cellular-pubescent within, the dorsal sepal yellow, diffusely dotted with purple-brown, suffused with purple at the base, broadly ovate, concave, 12 mm long, 12 mm wide expanded, connate to the lateral sepals for 4 mm to form a shallow, gaping cup, the rounded apex contracted into a slender, white tail 3.5-5 cm long, the lateral sepals greenish white, diffusely dotted with purple, elliptical, 25 mm long, 15 mm wide, connate 3 mm, the obtuse apices contracted into slender greenish white tails 2.5-5 cm long; **petals** white, sparsely dotted with purple, oblong, 5 mm long, 2 mm wide, the obtuse apex shallowly bilobed, the labellar margin with a longitudinal callus terminating in a short, acute tooth at the base, **lip** white, spotted with purple, oblong, 3.5 mm long, 2.75 mm wide, the apex yellow-brown, obtuse, recurved, with a low, midline callus, the base rounded, thickened, flat, hinged beneath; **column** greenish white, dotted with purple, semiterete, 4 mm long, the foot equally long with a stout, incurved extension.

PERU: **Amazonas**: Bongará: epiphytic in a cloud forest between Pomacochas and Moyabamba, alt. 2100 m, Aug. 1979, *W. Königer, H. Königer et al. K-29a* (Holotype: SEL; clonotypes: K, M, MO, USM, W, Herb. H. Königer); same collection, cultivated by W. Königer in Munich, Germany, 7 Sept. 1981, *C. Luer 6465* (SEL).
ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest south of Zamora toward Zumba, alt. 1450 m, 27 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10962* (MO); Río Jamboe, Valle de Zamora, alt. 1500 m, collected 1988 by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13621* (MO).



This handsome species occurs sparingly in southeastern Ecuador and adjacent northern Peru. It is characterized by a colorful flower unusually large for the size of the plant. The lateral sepals, diffusely and solidly dotted with purple, are proportionately large and broadly expanded, while the dorsal sepal is comparatively small. The petals are oblong with a short, basal process. The lip is small, diffusely speckled with purple and broadly oblong or subquadrate.

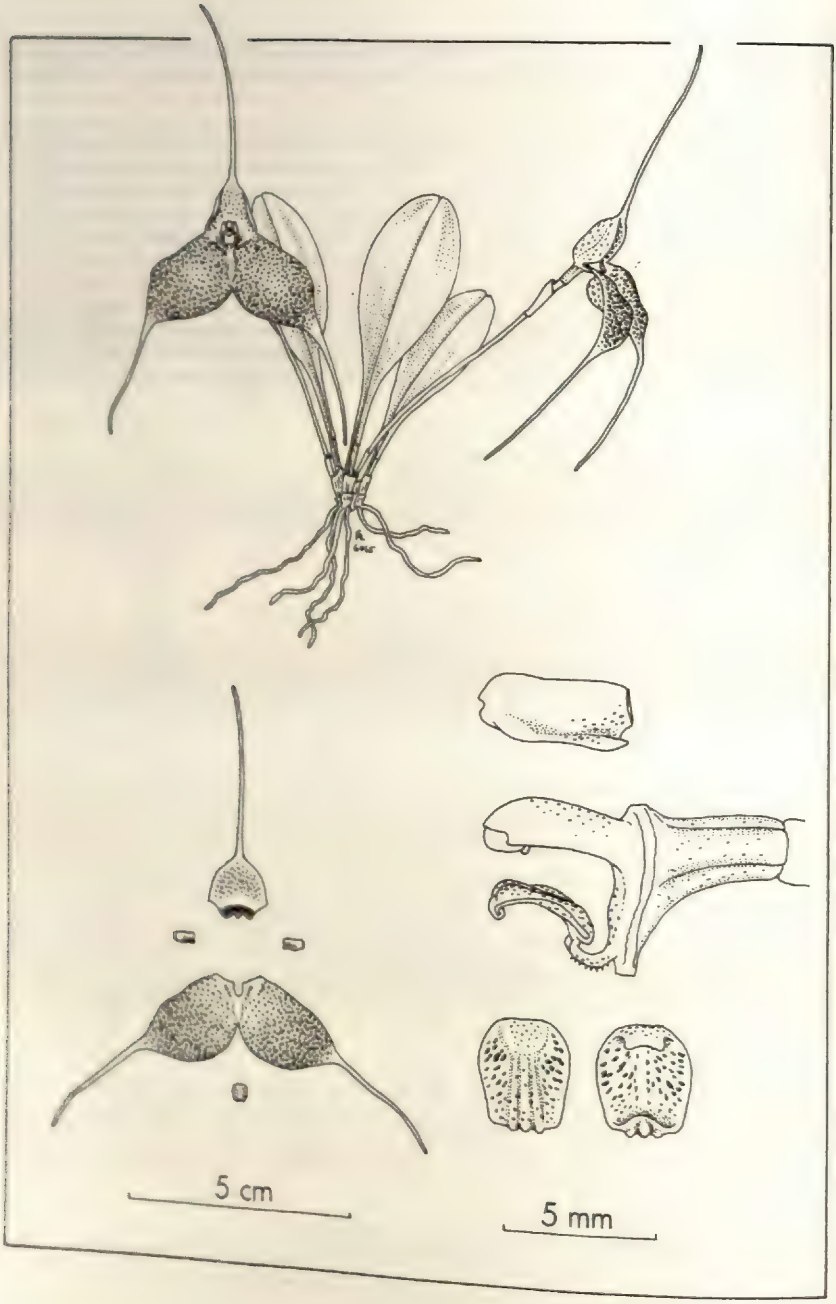
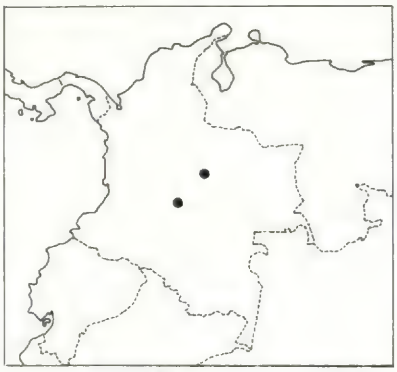


Plate 412. Masdevallia decumana

Masdevallia discolor Luer & Escobar, Orquideología 15: 129, 1982.

Ety.: From the Latin *discolor*, "not of the same color," in reference to the color of the sepaline tails.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-10 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, 1.5-2.2 cm wide, the apex obtuse to rounded, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 10-11 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 9 mm long; pedicel 15 mm long; ovary white, dotted with red, 7 mm long; **sepals** greenish white, speckled with red, glabrous, the dorsal sepal erect, obovate, concave, 17 mm long, 10 mm wide, connate with revolute margins to the lateral sepals for 3 mm to form a shallow, widespread, sepaline cup, the rounded apex abruptly contracted into an erect, slender, maroon tail 35 mm long, the lateral sepals elliptical, oblique, widespread, 15 mm long, 9 mm wide, connate basally for 1-2 mm, the rounded apices contracted into slender yellow tails 30 mm long; **petals** white with red dots at the apex, oblong, 6 mm long, 1.5-2.5 mm wide, the apex obtusely bilobed, the labellar margin with a longitudinal carina, obtusely winglike above the middle, developing into a thick, subacute process at the base; **lip** erect, white with purple flecks, ovate, 5 mm long, 3 mm wide, the apex obtuse, dark purple with a purple, marginal callous, the base rounded, hinged beneath; **column** white with the apex dark purple, semiterete, 4.5 mm long, the apex bidentate, the foot 3 mm long with an incurved extension.



COLOMBIA: **Cundinamarca**: Munic. of Gutierrez: between Fosca and Gutierrez, alt. 2400-2600 m, collector unknown, cultivated by H. Schmidt-Mumm, cultivated by M. & O. Robledo at La Ceja, 14 Jan. 1979, *R. Escobar 1915* (Holotype: JAUM; Isotype: SEL), C. Luer illustr. 3662; above Gutierrez, alt. 2700 m, 15 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10382* (MO); Moquentiva Valley, NW of Gachetá, alt. 2600 m, 26 June 1944, *M.L. Grant 9515* (AMES). **Boyacá**: Vado Hondo, alt. 2500 m, collected by R. Escobar, 1981, cultivated at Colomborquídeas, 9 May 1993, *C. Luer 16715*.

Known only from the Eastern Cordillera of Colombia, this species is one of several in a close alliance including *M. estradae* and *M. xanthina*. The colors of the sepals of these taxa are variable from white or yellow to dark purple. *Masdevallia discolor*, however, was first identified by the maroon tail of the dorsal sepal and the yellow tails of the lateral sepals, but these colors have proved to vary. The occasional variation with purple sepals is known in the horticultural trade as "forma violacea."

The peduncle of *M. discolor* is about as long as the leaves, and the process at the base of the petals is subacutely angled.

A photograph of this species was misidentified as *M. triangularis* in the Bulletin of the American Orchid Society, vol. 33, p. 117, 1964.

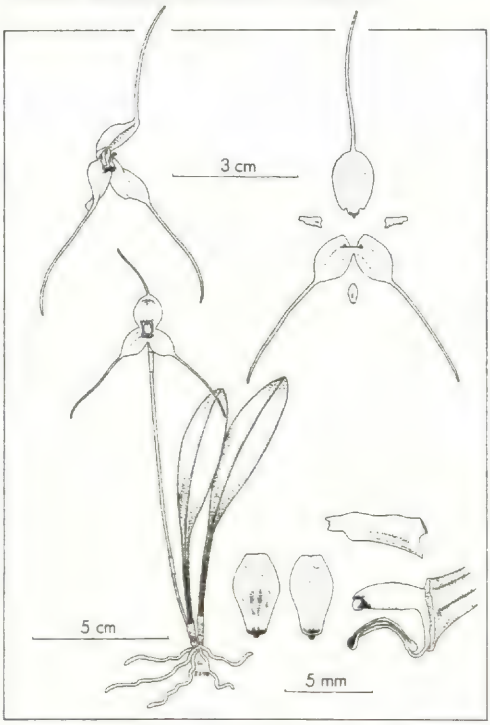


Plate 413. Masdevallia discolor

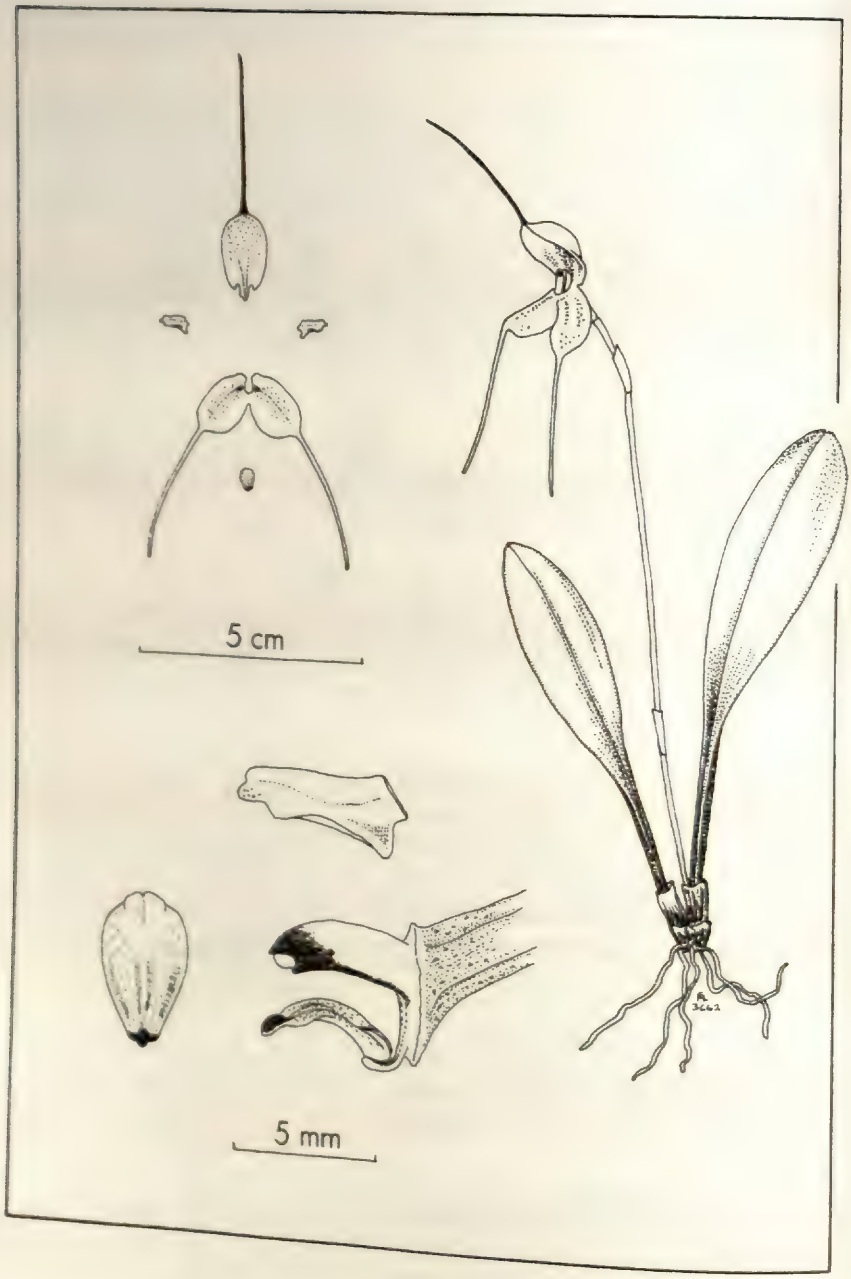


Plate 414. Masdevallia discolor

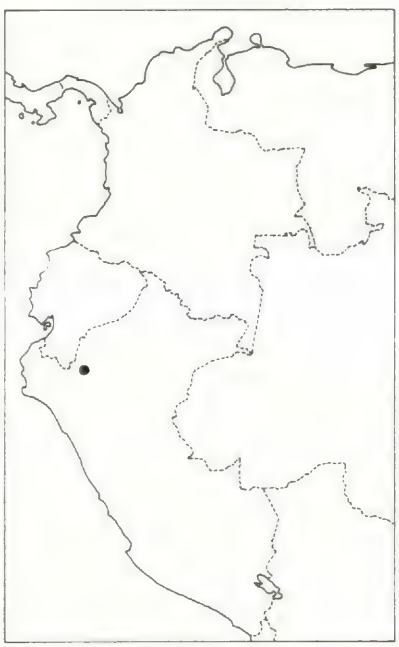
Masdevallia ephelota Luer & Cloes, sp. nov.

Ety.: From the Greek *ephelotos*, "freckled," referring to the speckled sepals.

Inter species subsectionis *Caudatae*, sepalis lateralibus palide viridibus intus punctatis, petalorum callo late alato, labello elliptico supra medium denticulato-eroso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, erect, 10-15 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-7.5 cm long including the petiole 1-1.5 cm long, the blade elliptical, subacute, 1.5-2.3 mm wide, the base cuneate into the blackish petiole. **Inflorescence** a single flower borne by a slender, erect peduncle ca. 5 cm long, from low on the ramicaul; floral bract tubular, 1.4 mm long; pedicel 16 mm long; ovary 6-7 mm long; **sepals** glabrous, light green, the blade of the dorsal sepal elliptical, concave, 13 mm long, 10 mm wide, connate to the lateral sepals for 5 mm to form a gaping cup, the apex rounded, abruptly contracted into a reflexed, slender, yellow-green tail 20 mm long, the lateral sepals diffusely speckled within with brown, connate 8 mm into a broadly oblong lamina, 12 mm long, 19 mm wide, the apices transverse, contracted into descending tails similar to that of the dorsal sepal; **petals** light yellow-green, with brown tip and spots, oblong, with a broadly winged carina along the labellar margin ending in a descending, digitiform process above the base, 4 mm long, 2 mm wide, the apex truncate-retuse, subtrilobulate; **lip** cream with multiple, brown dots, with tip and margins brown, elliptical, 5.5 mm long, 3 mm wide, denticulate-erose above the middle, the apex shortly trilobed, acutely reflexed, the disc with a parallel pair of low calli, the base subtruncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long with an incurved extension.

PERU: **Amazonas**: Río Neiva, alt. 2400 m, collected by Patrick and Martine Cloes, July 2000, cultivated in Hasselt, Belgium, 8 Aug. 2001, *C. Luer 20006* (Holotype: MO).



This species of northern Peru is closely allied to those treated in subsection *Oscillantes*. Vegetatively, it is indistinguishable from many species in section *Masdevallia*. It is distinguished by the light green sepals with the broad synsepal diffusely speckled with brown. The tails are yellow-green, two centimeters long, and very slender toward the apices. The callus of the petals is broad and winglike, ending in a fingerlike process at the base. The lip is elliptical with the margin minutely fringed above the middle. The tip is trilobulate and acutely recurved. The disc is slightly thickened below the middle and the lip is not concave beneath as in subsection *Oscillantes*.

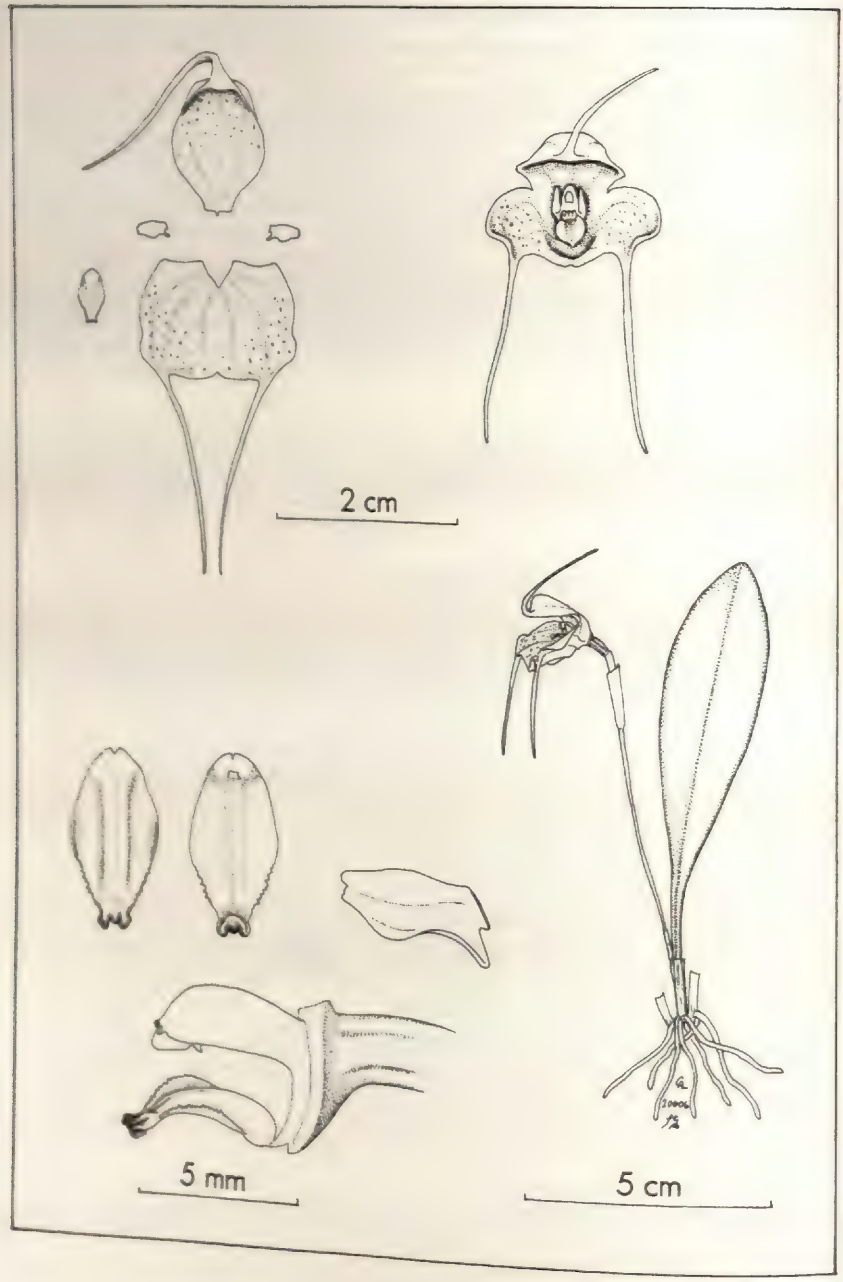


Plate 415. Masdevallia ephelota

Masdevallia estradae Rchb.f., Gard. Chron. 2: 435, 1874.

Ety: Named in honor of a Doña Estrada in whose orchid collection this species was first discovered.

Syn.: *Masdevallia estradae* var. *delicata* Rchb.f., Gard. Chron. n.s. 17: 524, 1882.

Ety.: From the Latin *delicatus*, "delicate," referring to a quality of the plant.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-3.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-9.5 cm long including the petiole 1-3.5 cm long, the blade elliptical-obovate, subacute to obtuse, 1.5-2.5 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 7-11 cm long, with a bract above the base, from low on the ramicaul; floral bract thin, tubular, 7-10 mm long; pedicel 10-21 mm long; ovary rose to white, 5-9 mm long; **sepals** light yellow to white, suffused with rose or purple centrally or basally, glabrous, with the margins microscopically erose, the dorsal sepal obovate, concave, carinate, 15 mm long, 10 mm wide expanded, connate to the lateral sepals for 3 mm to form a shallow, sepaline cup, the apex broadly rounded, abruptly contracted into a suberect, slender, yellowish tail 3-4 cm long, the lateral sepals oblong, oblique, 12 mm long, 7.5 mm wide, connate 1.5 mm, the apices rounded, contracted into slender, descending tails similar to that of the dorsal sepal; **petals** white, oblong, 6 mm long, 1 mm wide, 2.5 mm wide at the base, the apex tridentate, the labellar margin with a longitudinal lamella, dilated above the middle, ending above the base in a broad, thick, retrorse process; **lip** erect, light rose to white, flecked with purple, thin, elliptical, slightly concave above the middle, 5.5 mm long, 2.5 mm wide, the apex rounded, with a purple, midline callus, the base subtruncate, hinged beneath; **column** white with purple margins, semiterete, 4.5 mm long, the foot 4 mm long, with a slender, incurved extension.

COLOMBIA: Without data, discovered in the collection of Doña Estrada, ca. 1872, by *G. Wallis s.n.* (Lectotype: W); without data, cultivated by H.E. Cauty, Esq., of Liverpool, England, illustrated in Bot. Mag. t. 6171, 1875, *?M. Patin s.n.* (K). **Antioquia**: "Medellín," *Patin s.n.* (W); Río Tonusco above Antioquia, alt. 2500 m, 24 Oct. 1884, *F.C. Lehmann 4131* (AMES, G, K); Livornia, between Sillón and La Pava, alt. 2100 m, Nov. 1973, collected by J. M. Serna, cultivated by M. & O. Robledo at La Ceja, 15 July 1974, *R. Escobar 1290* (JAUM); Urrao, El Chuzcál, alt. 2000 m, collected by E. Segura, 26 Apr. 1977, cultivated at Estrella by O. Arango, 26 Sept. 1977, *C. Luer 1845* (SEL); Frontino, Murri, collected by J.M. Serna, cultivated by M. & O. Robledo at La Ceja, 9 Oct. 1977, *C. Luer 1969* (SEL); Abriaqui, Río Herradura, alt. 2200 m, 13 May 1983, *R. Escobar & E. Valencia 2592* (JAUM); same collection, cultivated at Colomborquídeas, 29 Apr. 1984, *C. Luer 10034* (MO). **Boyacá**: Peña de Gallo, Salto de Candelar, alt. 2200 m, collected by J. Velásquez, cultivated by M. & O. Robledo, 23 Mar. 1975, *R. Escobar 1500* (JAUM). **Cundinamarca**: road to La Vega, alt. 1800 m, 1 June 1941, *J. Renz 3572* (BAS).

This pretty species occurs in all three cordilleras of Colombia, but nowhere is it common. Wallis first found it about 1872 in the collection of a Doña Estrada in Medellín, but nothing is known about her. Patin later sent living plants, probably the source of the specimen used for the painting in Curtis' *Botanical Magazine*.

Masdevallia estradae is distinguished by the slender, single-flowered peduncles that hold the small, delicate flowers above the leaves. The long-tailed sepals are comparatively narrow and usually suffused centrally with purple. The tail of the concave, hoodlike, dorsal sepal points forward. The erect petals and lip are exposed in the center of the flower. It is closely allied to *M. ludibunda*, which is distinguished by the more deeply concave, or cucullate, dorsal sepal with a deflexed tail.

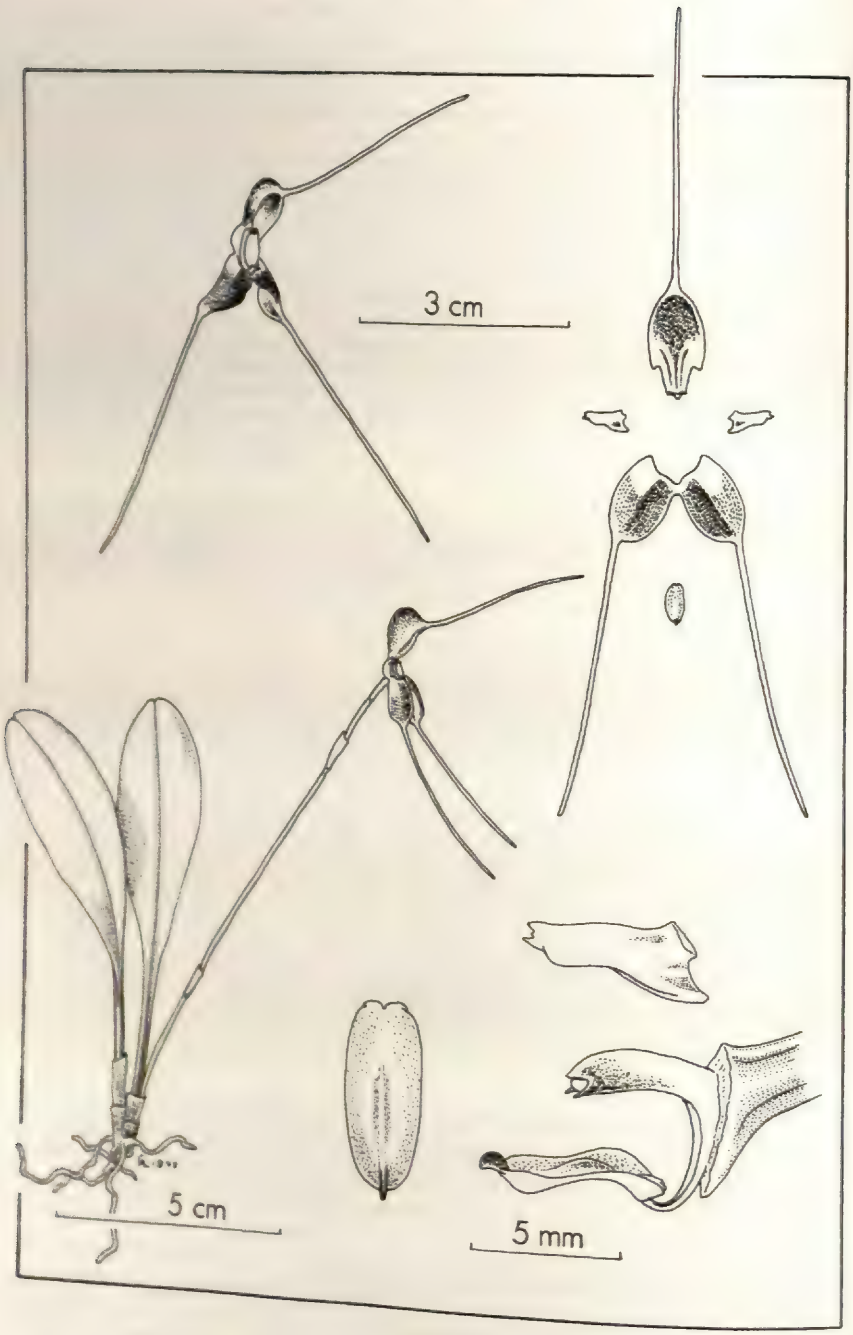


Plate 416. Masdevallia estradae

Masdevallia eucharis Luer, Novon 1: 168, 1991.

Ety.: From the Greek *eucharis*, "lovely, pleasing," in allusion to the aspect of the plant.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-5 cm long including the petiole 1-1.5 cm long, the blade elliptical, obtuse to rounded, 1.7-2.1 cm wide, cuneate below into the petiole. **Inflorescence** a solitary showy flower, borne by a slender, erect peduncle 25-28 mm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 9 long; ovary 4 mm long; **sepals** yellow to peach, suffused below the middle with red-brown, glabrous, the dorsal sepal suborbicular-obovate, concave, 12 mm long, 11 mm wide, connate to the lateral sepals for 5 mm to form a shallow, conical, sepaline cup, the apex rounded, abruptly contracted into a slender tail 29-32 mm long, the lateral sepals suborbicular to broadly ovate, oblique, 14 mm long, 11 mm wide, connate 5 mm to form a transverse lamina, the apices transverse to obtuse, abruptly contracted into slender tails similar to that of the dorsal sepal; **petals** yellow, oblong, 4 mm long, 1.5-2 mm wide, the apex truncate, obscurely trilobulate, the labellar margin with a longitudinal callus with an obtuse angle above the middle, thickened below the middle, ending in a retrorse process protruding beyond the base; **lip** yellow with purple dots, rhombic, 4 mm long, 2.75 mm wide, with the margins thin, minutely erose, obtusely angled near the middle, the apex narrowly truncate, with a small, red-brown, midline callus, the disc longitudinally thickened centrally, the base narrowly cordate, hinged beneath; **column** yellow with purple dots and margins, semiterete, 4.5 mm long, the foot 1 mm long, with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Yangana, alt. ca. 1800 m, 1987, obtained from Dennis D'Alessandro, cultivated at Colomborquídeas, El Retiro, Colombia, 5 Mar. 1989, *C. Luer 14103* (Holotype: MO).

This species from southern Ecuador is another of the numerous species closely allied to *M. xanthina*. It is closely related to the usually white-flowered *M. bottae*, also from southern Ecuador, and it also resembles *M. rufescens*, which also grows in the area. From the latter two *M. eucharis* is distinguished by the light yellowish sepals suffused with peach or light red-brown, and a rhombic lip with thin, minutely erose, obtusely angled margins, and with the disc longitudinally callous. Some clones of *M. bottae*, a species characterized by a subquadrate lip, are similarly colored.

The "diamond-shaped" lip of *M. eucharis* is reminiscent of the lip seen in subsection *Oscillantes*. If it were not for the petals with the thick, incurved, basal process, this species might be considered to belong in subsection *Oscillantes*.

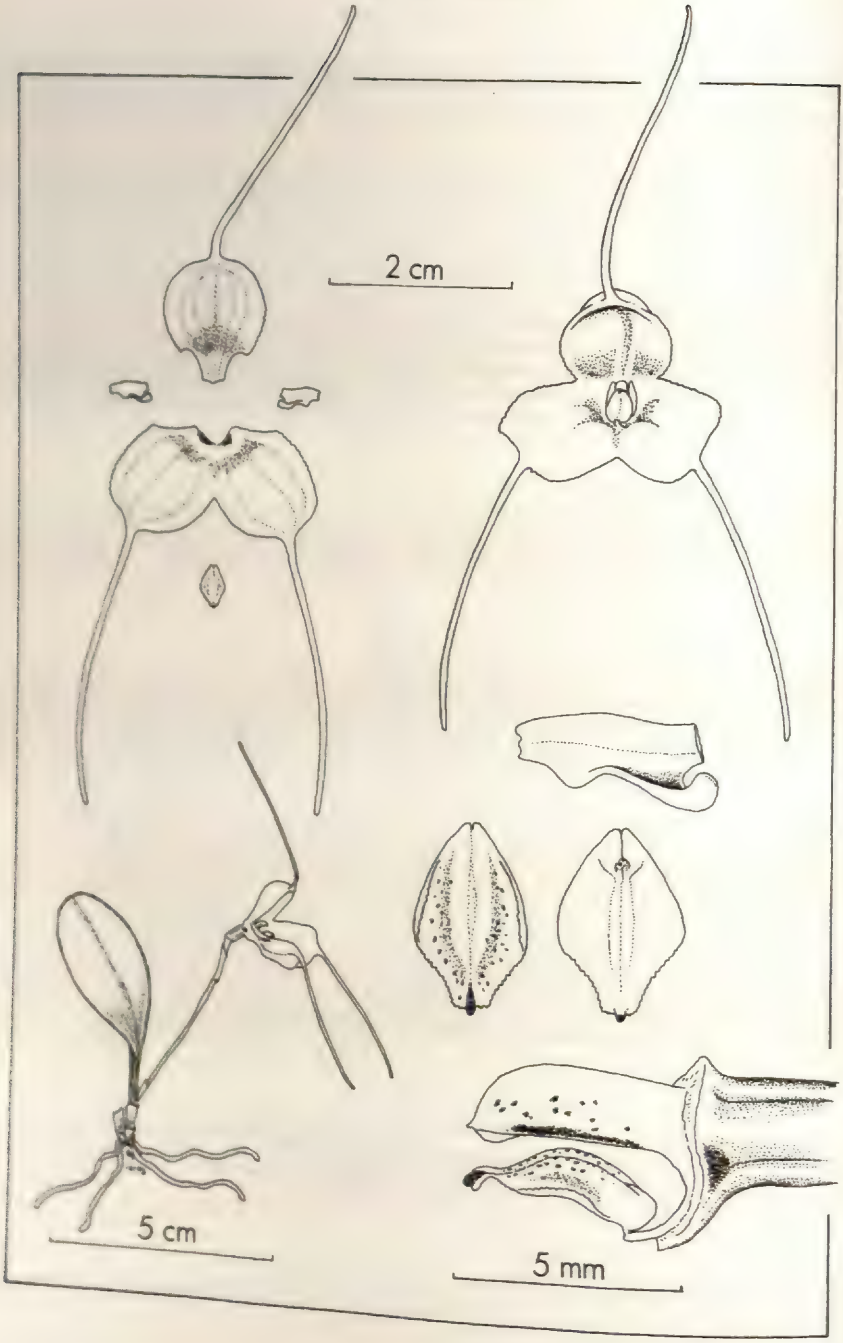


Plate 417. Masdevallia eucharis

Masdevallia eumeliae Luer, Lindleyana 8: 44, 1993.

Ety.: Named in honor of Sra. Eumelia Cucho de Arias, wife of Manuel Arias Silva of Lima, Peru.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 2-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 8-18 cm long including the petiole 3-6 cm long, the blade elliptical, subacute, 1.8-2.8 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 11-16 cm long, with a thin bract on the lower third, from the ramicaul 1-2 cm above the base; floral bract tubular, 1.5 cm long; pedicel 3-4 cm long; ovary 7 mm long; **sepals** red-orange, glabrous and subcarinate externally, long-pubescent within, the margins more or less revolute, the dorsal sepal elliptical, 28 mm long, 8 mm wide, connate to the lateral sepals for 7 mm to form a gaping flower, with the subacute apex contracted into a slender, orange tail 20-27 mm long, the lateral sepals oblong, oblique, obtuse, 25 mm long, 12 mm wide, connate 9 mm, the apices contracted into tails similar to that of the dorsal sepal; **petals** yellow, oblong, with the apex subtruncate and obscurely lobulate, 6.5 mm long, 2 mm wide near the middle, 4 mm wide at the base, the labellar margin with a longitudinal callus ending at the base in a descending, triangular wing with a rounded tip; **lip** yellow, ovate, 6.5 mm long, 3 mm wide, with undulating margins above the middle, the apex narrowly rounded, the disc with a flat, longitudinal callus, the base subtruncate, hinged beneath; **column** yellow, semiterete, 5 mm long, the foot 2.5 mm long with a thin 1 mm long, incurved extension.

PERU: **Junín**: Prov. of Tarma, epiphytic above Huasa Huasi, alt. 2600-3000 m, collected by Felix Mijahuanga Maza, cultivated in Lima, 23 Oct. 1991, by *M. Arias S. 002* (Holotype: MO), C. Luer illustr. 16329; same area, collected by F. Mijahuanga, alt. 3000 m, 15 July 1992, cultivated in Lima by *D. Bennett 5679* (USM).

This spectacular species has recently been discovered near the locality of *Masdevallia uniflora* above Huasa Huasi in central Peru. The showy, red-orange flower is held high on a slender peduncle, about as high as the long-petiolate leaves. The blades of the sepals are long-pubescent within, and the slender tails are about as long as the blades. The petals possess a large, descending, triangular process at the base. The ovate lip with broadly undulating margins is narrowly rounded at the apex.

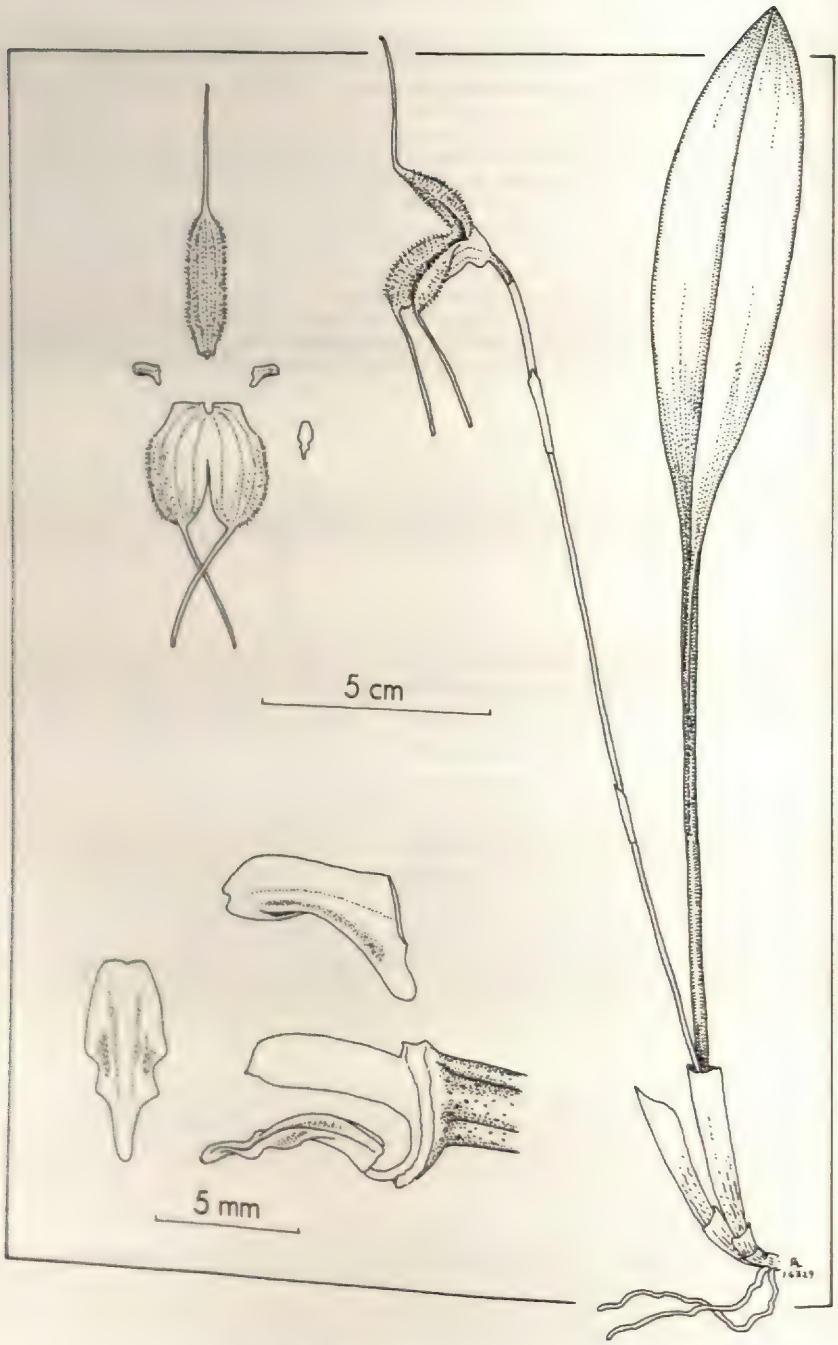


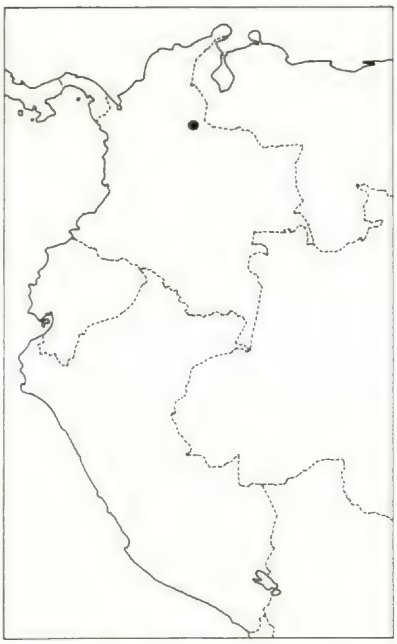
Plate 418. Masdevallia eumeliae

Masdevallia expansa Rchb.f., Otia Bot. Hamburgensia 1: 16, 1878.

Ety.: From the Latin *expansus*, "expanded," referring to the sepals.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-7 cm long including a petiole 1.5-2.5 cm long, the blade elliptical, subacute to obtuse, 1.4-1.8 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 3-4 cm long, with a thin bract above the base, from low on the ramicaul; floral bract tubular, 9-10 mm long; pedicel 6-7 mm long; ovary 6 mm long; **sepals** light rose, suffused and veined with purple, dull yellow toward the base, glabrous, the dorsal sepal obovate, concave, 17-19 mm long, 10-11 mm wide, connate to the lateral sepals for 9 mm to form a gaping, sepaline cup, the apex rounded, abruptly contracted into an erect, slender, purple tail 3 cm long, the lateral sepals ovate, oblique, 14 mm long, 9 mm wide, connate 4 mm to form an obtuse, conical mentum below the column-foot, the apices subacute, contracted into slender, purple tails 2.5 cm long; **petals** white, suboblong, 6 mm long, 2.5 mm wide, the apex truncate, trilobulate, the labellar margin with a thick longitudinal callus ending in a thick, obtuse, retrorse process above the base; **lip** white, diffusely speckled with purple, oblong, 5 mm long, 2.25 mm wide, the apex broadly rounded with a marginal callus, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** white, suffused with purple, semiterete, 5 mm long, the foot equally long including the slender, incurved extension.

COLOMBIA: **Norte de Santander**: La Baja near Pamplona, alt. 9,000 ft., 1849, *L. Schlim 1182, in part* (Lectotype of *M. expansa*: W; Isolectotype: G); without collection data, cultivated by J & L Orchids, Easton, CT, 6 Mar. 1978, *C. Luer 2787* (SEL).



This species is closely allied to *M. caudata*, appearing to be a smaller, less colorful variation, and restricted to the Eastern Cordillera of Colombia. Schlim's collection (*Schlim 1182*) consists of two similar species that have been mounted on separate sheets at W. One is *M. arminii*, the other was described by Reichenbach as *M. expansa*.

It is distinguished from both *M. arminii* and *M. caudata* by narrower, less deeply connate lateral sepals with a shallower mentum. The pressed flower has been "expanded" with the sepals widely separated. Reichenbach's drawing shows the lip oblong with an apical callus. The lip of *M. caudata* is broadly oblong with the apical callus small and equidistant from the apical and lateral margins.

Although no recent collections of this species have been recognized, some may be included among citations of specimens of *M. caudata*. The illustration provided herewith is as close to *M. expansa* as any known.

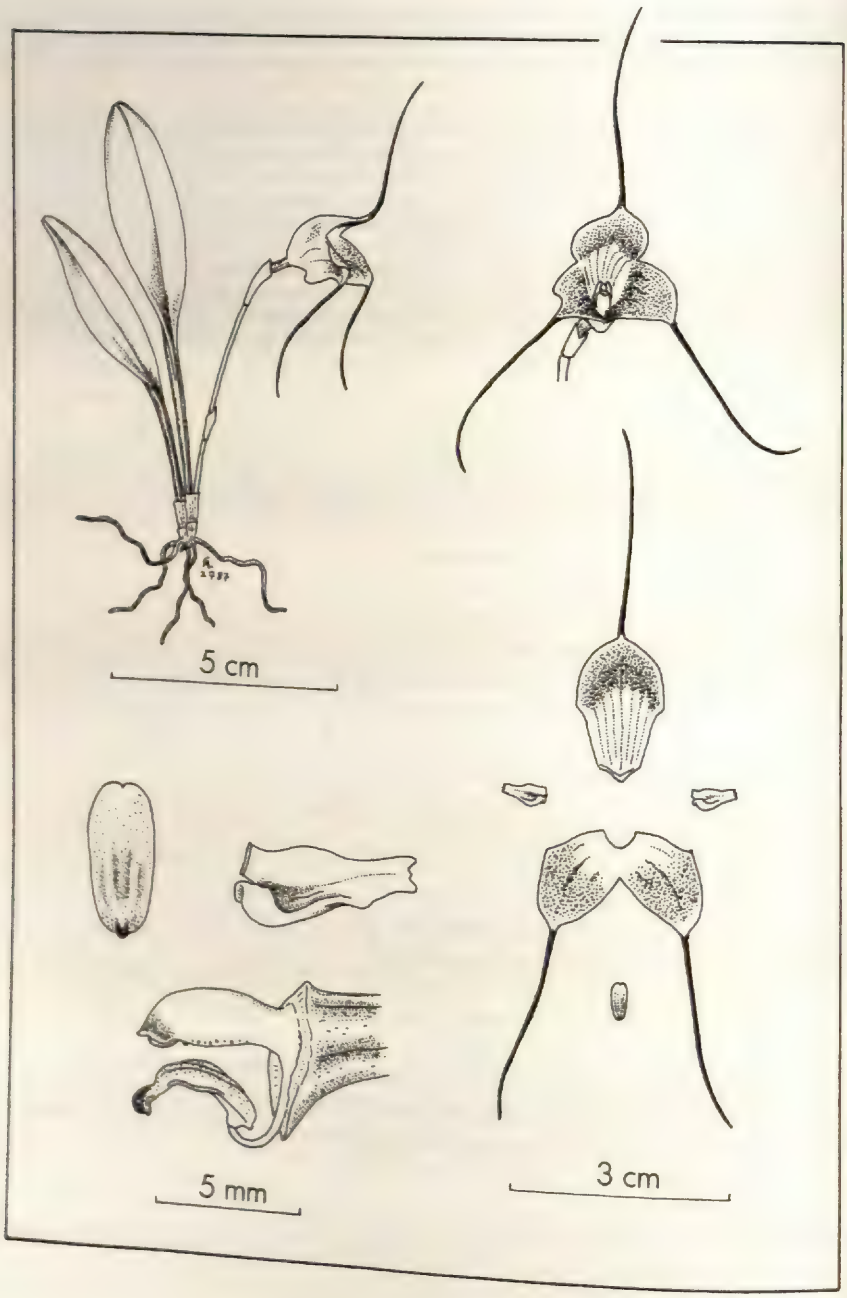


Plate 419. Masdevallia expansa

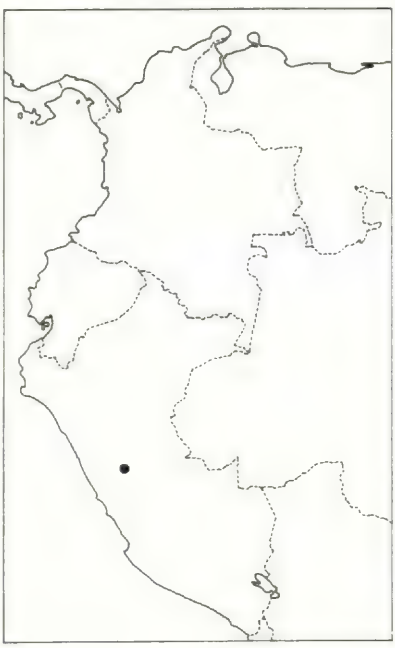
Masdevallia harlequina Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 64: 130, 12 Dec. 1997.

Ety.: Named for Harlequin, the clownish character of Italian comedy noted for a mask and spangled tights.

Syn.: *Masdevallia shiraishii* Königer & M.Arias, Arcula 7: 199, 22 Dec. 1997.
Ety.: Named for Shigero Shiraishi of Tokyo, Japan, orchid hobbyist.

Plant small, epiphytic, caespitose; roots slender. Ramicauls black, stout, erect, 1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4.5-5.5 cm long including the petiole ca. 2 cm long, the blade elliptical, obtuse, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a suberect to horizontal peduncle ca. 4 cm long, with a bract at the base, from near the base of a ramicaul; floral bract tubular, 8-9 mm long; pedicel 17-18 mm long; ovary 4 mm long; **sepals** light yellow-orange, with numerous, small, diffuse patches of short, red-purple hairs, the dorsal sepal erect, concave above the middle, 16 mm long, 11 mm wide, connate basally to the lateral sepals for 4 mm to form a shallow, gaping, sepaline cup, the apex rounded, contracted abruptly into a slender, acutely reflexed tail ca. 4 cm long, the lateral sepals subquadrate, oblique, connate 10 mm into a transverse lamina that is deeply concave centrally, with the apices obtuse, contracted into slender, recurving tails ca. 4.5 cm long; **petals** white, cartilaginous, triangular, 5 mm long, 3 mm wide, the apex subtruncate, minutely tridentate, the labellar margin with a thick, incurved process extending beyond the base; **lip** green, dotted with purple, ovate, erect, 6 mm long, 2.75 mm wide, thickened toward the rounded base, with the margins thin, long-denticulate to fimbriate above the middle, the apex black, minutely trilobed, the base hinged beneath to the column-foot; **column** light yellow, semiterete, 4 mm long, the foot equally long with an incurved extension.

PERU: **Huánuco**: without specific data, obtained from M. Arias, cultivated at J & L Orchids, 1297-547, Oct. 1997, *C. Luer 18669* (Holotype: MO); Ocomayo, Carpish, alt. 2800 m, collected by S. Ruiz P., cultivated in Lima, Peru, by M. Arias, *W. Königer WK-76* (holotype of *M. shiraishii*: M; isotypes: K, UNALM, USM, Herb. H. Königer).



This unique species is apparently rare and endemic in central Peru. In common with other species of subsection *Caudatae*, the erect dorsal sepal is shortly connate to the lateral sepals to form a flower with a gaping sepaline cup. The sepals are diffusely studded with small patches of short, purple hairs that appear as numerous dots. The lateral sepals are deeply connate to form a conspicuous, well-demarcated, central depression. The long, slender tails are reflexed. The callus of the petals is thick with square edges as it protrudes beyond the base. The lip stands erect in the center of the flower, hinged to a long, incurved column-foot. The lip is ovate with thin, long-fringed margins, unique in the subsection.

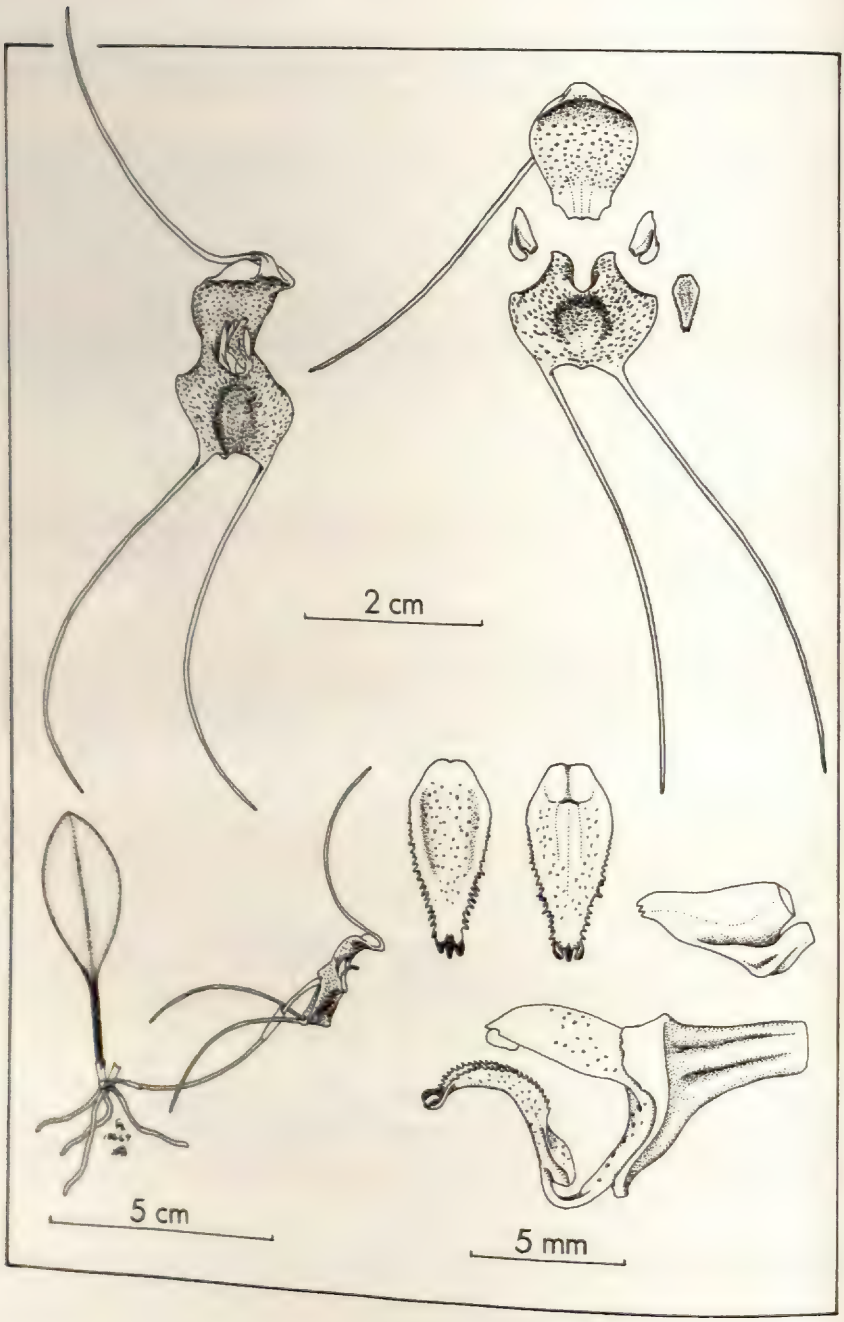


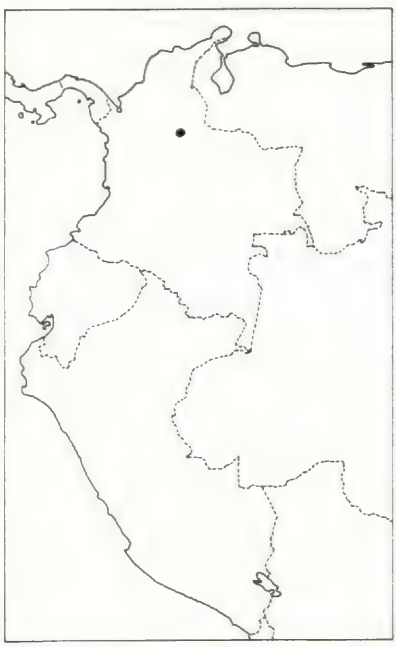
Plate 420. Masdevallia harlequina

Masdevallia hubeinii Luer & Würstle, Orchideeën 48: 50, 1986.

Ety.: Named in honor of Herr Günter Hubein of Berlin, Germany, who has collected extensively in the Andes of Colombia.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-7.5 cm long including the petiole 1.5-3 cm long, the blade obovate, obtuse, 1.9-2.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, horizontal to descending peduncle 3.5-4 cm long, (more or less "S-shaped") with a bract near the base, from low on the ramicaul; floral bract 8 mm long; pedicel 9 mm long; ovary 5-6 mm long; **sepals** glabrous, light yellow-green, minutely dotted with purple along the veins within, the dorsal sepal broadly obovate, 13 mm long, 12 mm wide, connate to the lateral sepals for 6 mm to form a gaping, sepaline cup, the free portion rounded, abruptly contracted into an erect, slender, light green tail 25 mm long, the lateral sepals lightly suffused with rose below the middle, ovate, obtuse, 13 mm long, 10 mm wide, connate 5 mm to form a broad, deep mentum below the column-foot, the apices contracted into descending tails similar to that of the dorsal sepal; **petals** white, oblong, cartilaginous, 6 mm long, 1.5-2.5 mm wide, the truncate apex shortly tridenticulate, the labellar margin with a longitudinal callus, obtusely angled above the middle, markedly thickened below the middle to form a large, rounded appendage above the base; **lip** yellow, elliptical, erect, 5 mm long, 3.5 mm wide, the apex suffused with brown, round, recurved, with a low, marginal callus, the disc with a low pair of central, longitudinal calli above the middle, minutely dotted with brown, the base subtruncate, hinged beneath; **column** yellow, edged in purple, semiterete, 5 mm long, the foot 3 mm long including the incurved extension.

COLOMBIA: Eastern Cordillera, without specific locality, collected by G. Hubein, cultivated in Spielberg, Germany, 27 Oct. 1985, *B. Würstle 1324* (Holotype: MO), C. Luer illustr. 11456.



This species was collected somewhere in Colombia by Herr Günter Hubein, orchid grower in Berlin. It flowered among a group of freshly collected plants of *M. hieroglyphica* purchased from Hubein by Berthold Würstle. Therefore, it was probably collected out of flower at the same time and place as *M. hieroglyphica*. The latter is known only from the Eastern Cordillera.

Masdevallia hubeinii is a close relative of *M. caudata*, also known from the Eastern Cordillera, but it is distinguished from the latter by the smaller, less colorful flowers borne by a more or less horizontally sigmoid peduncle. The sepals are light yellow-green without the prominent purple stripes and dashes seen in *M. caudata*. The petals, lip and column of the two species are extremely similar. The apical callus of the lip of *M. hubeinii* is located on the margin, not a distance below the margin as in *M. caudata*.

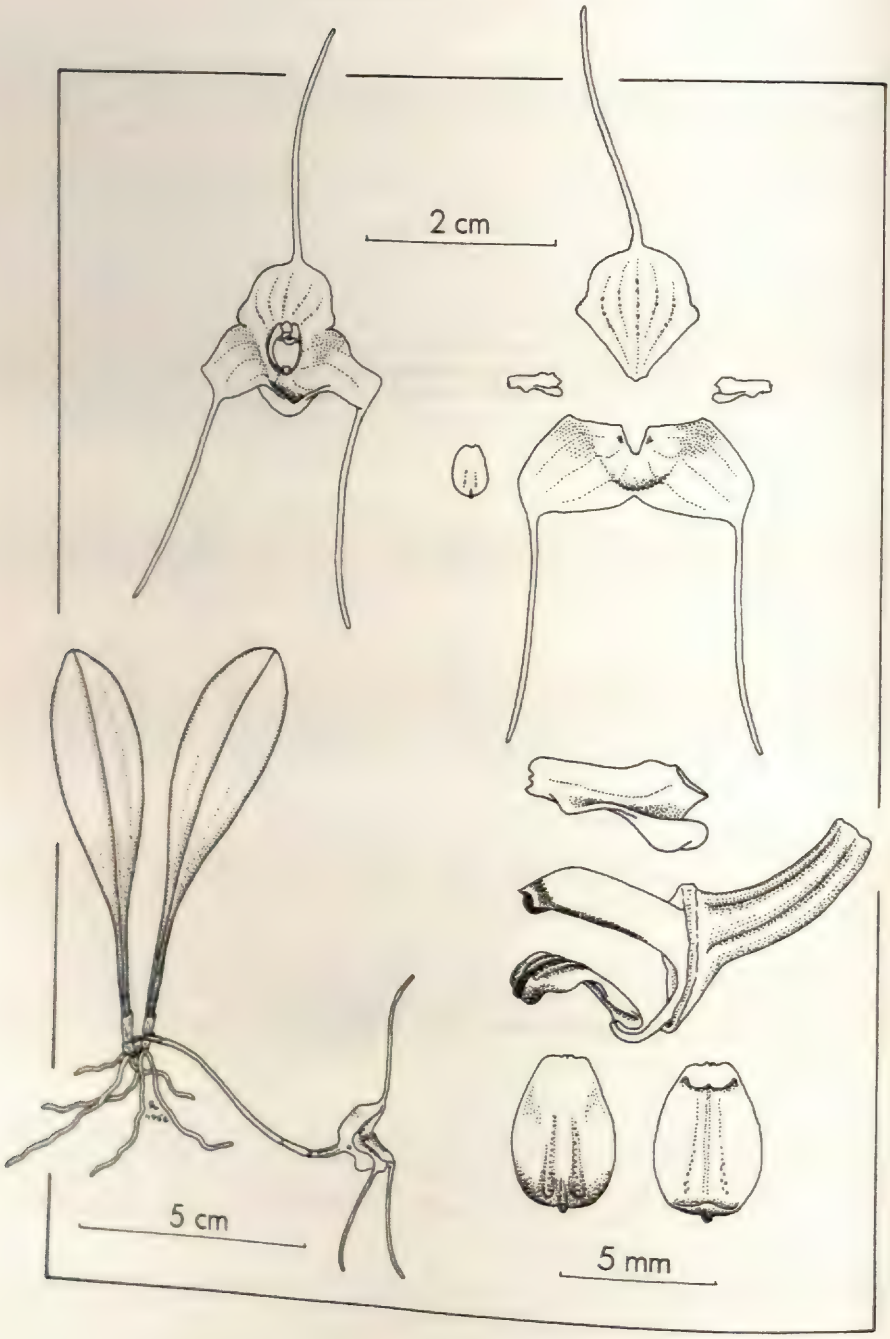


Plate 421. Masdevallia hubeinii

Masdevallia icterina Königer, Die Orchidee 41: 139, 1990.

Ety.: From the Latin *icterinus*, "jaundice yellow," referring to the color of the flower.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1.5-2 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-8.5 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, obtuse, 1.5-2 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 3.5-4.5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 11-13 mm long; pedicel 12-15 mm long; ovary green, 5 mm long; **sepals** pale yellow, more or less lightly dotted with red-purple, glabrous, the dorsal sepal broadly obovate, concave above the middle, 16 mm long, 15 mm wide, connate to the lateral sepals for 4 mm to form a shallow, widely expanded, sepaline cup, the apex transverse, abruptly contracted into a slender, reflexed, yellow-green tail 4-4.5 cm long, the lateral sepals suborbicular, 18 mm long, 15 mm wide, connate 6.5 mm, the apices rounded, contracted into slender, descending tails 3.5 cm long; **petals** yellow-white, irregularly oblong, 4.5 mm long, 1 mm wide at the apex, 1.5 mm wide near the middle, 2.5 mm wide above the base, the apex obtuse, bilobulate, the labellar margin with a longitudinal callus, obtusely angled near the middle and ending in an oblong, descending process above the base; **lip** white, diffusely flecked with purple, obovate, 5 mm long, 2.75 mm wide, the apex rounded with minutely undulate margins, with a protruding, dark purple, midline callus, the disc convex below the middle, concave beneath, the base narrowly subcordate, hinged below; **column** white, flecked with purple, semiterete, 4.75 mm long, the foot thick, with a slender, incurved extension.

PERU: **Amazonas**: Bongará, near Pomacochas, alt. ca. 2000 m, collected by J. Meza T. in 1977, cultivated Munich, Germany, May 1980, by *W. Königer WK-11* (Holotype: M; Isotypes: K, SEL, USM, W), C. Luer illustr. 5274 (copied and slightly modified for *Die Orchidee* 41, page 140); same collection, cult. at Colomborquídeas in Colombia, 17 Apr. 1988, *C. Luer 13247* (MO).

This rare species is endemic in the forests of northern Peru where it is was found growing with *M. wurdackii*. It is known only from the original collection. It is characterized by the medium-sized habit with petiolate leaves and light yellow flower that is large for the subsection. The erect, dorsal sepal is concave toward the apex to create a hoodlike appearance. The lip stands erect in the center of the widely spread flower. A dark purple callus is present at the center of the broadly rounded apex of the obovate lip.

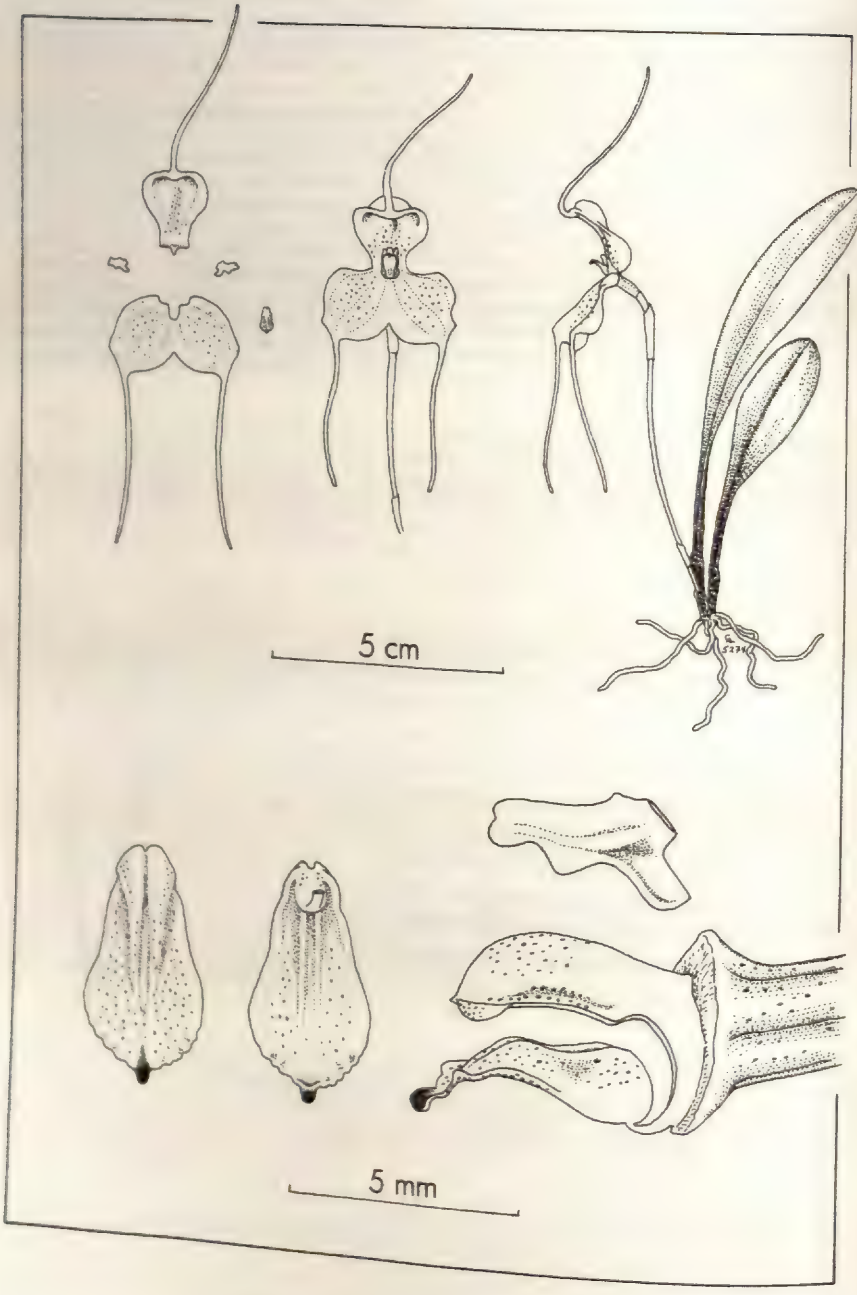


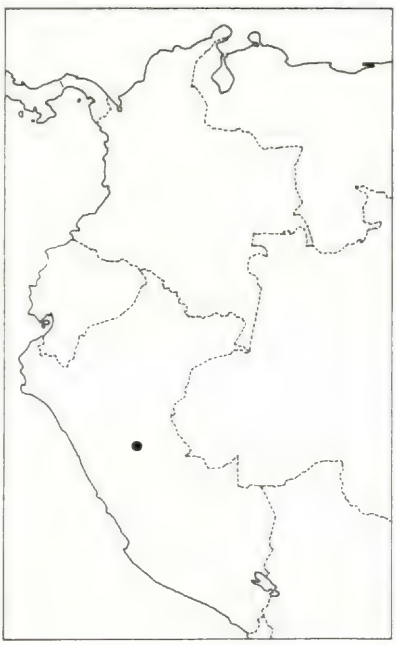
Plate 422. Masdevallia icterina

Masdevallia immensa Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 122, 2000.

Ety: From the Latin *immensus*, "immense," referring to the huge size of the flower.

Plant large for the subsection, epiphytic, caespitose; roots coarse. Ramicauls blackish, slender, erect, 1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-10 cm long including the petiole 2-3 cm long, the blade narrowly elliptical, obtuse, 2.5-3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 10-13 cm long, with a bract above the base, from low on the ramicaul; floral bract 15 mm long; pedicel 20 mm long; ovary 10 mm long; **sepals** ivory white to creamy or milky white, lightly suffused with pale brown above the base, cellular-glandular within, glabrous externally, the dorsal sepal elliptical-obovate, concave, 31 mm long, 18 mm wide, connate to the lateral sepals for 5 mm to form a shallow, gaping cup, the apex broadly rounded, abruptly contracted into an erect, light yellow tail 75 mm long, the lateral sepals oblong, 27 mm long, 15 mm wide, connate 4 mm, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 7 mm long, 3 mm wide, the apex truncate-tridentate, with a thick, longitudinal carina along the labellar margin terminating in a thick, retrorse, rounded process beyond the base; **lip** white, elliptical-ovate, 7 mm long, 3.75 mm wide, the apex rounded with a small, midline, purple callus, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** semiterete, white, 5 mm long, the foot 4 mm long, with a slender, incurved extension.

PERU: **Huánuco**: cloud forest between Tingo Maria and Pucallpa, La Divisoria, alt. 1800 m, collected July 1998, cultivated at Hasselt, Belgium, *P. Cloes 990214* (Holotype: MO); C. Luer illustr. 19056.



This species is one of the largest known in the subsection *Caudatae*. Although it is related to *M. klabochiorum*, the huge size of creamy white flowers immediately distinguishes it. Although the flowers answer nearly the same description except for dimensions, the appearance is distinctive. The dorsal sepal of both species is concave, but that of *M. immensa* is broadly and shallowly concave, instead of more deeply concave above the middle. The lateral sepals of both species are more or less reflexed, but the angle between them is obtuse in *M. klabochiorum* and acute in *M. immensa*. The petals and lip are not distinctive.

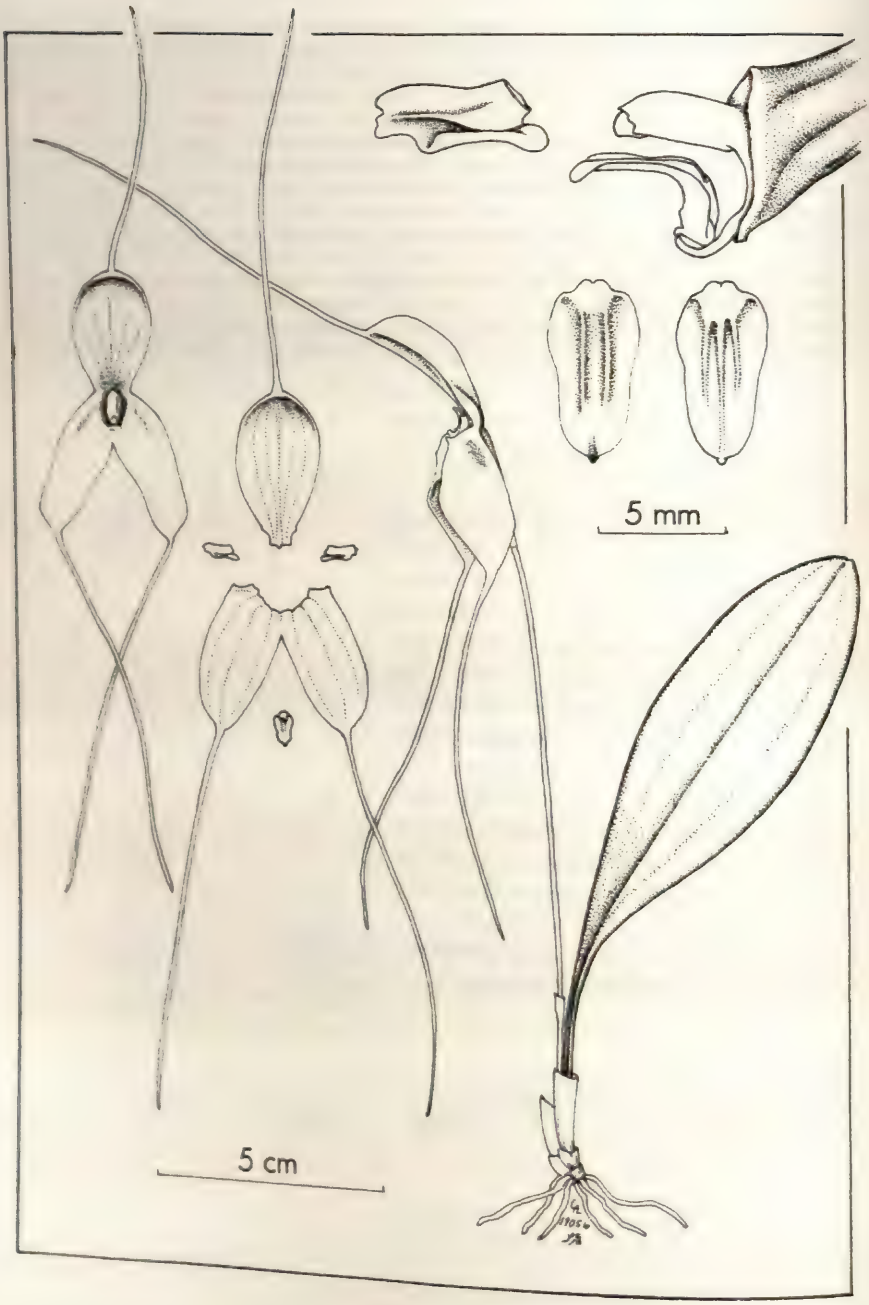


Plate 423. Masdevallia immensa

Masdevallia instar Luer & Andreetta, Phytologia 39: 206, 1978.

Ety.: From the Latin *instar*, "a likeness, or an image," referring to the similarity of the species to *Masdevallia triangularis* Lindl.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-12 cm long including the petiole 2-5 cm long, the blade elliptical-obovate, subacute, 1.6-2.3 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 6-12 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-14 mm long; pedicel 10-20 mm long; ovary 9-10 mm long; **sepals** yellow, minutely flecked with red within, glabrous, the dorsal sepal ovate, 14-17 mm long, 11-14 mm wide, connate to the lateral sepals for 4-5 mm to form a shallow cup, the apex obtuse to rounded, contracted into a slender, orange-brown tail 30-45 mm long, the lateral sepals ovate, oblique, 12-17 mm long, 10-13 mm wide, connate 4 mm to form a prominent secondary mentum, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 6 mm long, 2 mm wide, the truncate apex lightly trilobed, the lower margin with a thick carina terminating at the subpetiolate base in a thick, truncate, inflexed, retrorse appendage; **lip** thin, ivory, diffusely dotted with purple, elliptical-ovate, 4.5-5.5 mm long, 3 mm wide, constricted below the truncate apex, suffused with purple, with a short, midline callus, the base thickened, subcordate or rounded, hinged beneath; **column** white, suffused with purple at the apex, semiterete, 4.5 mm long, the foot 3 mm long including the slender, incurved extension.

ECUADOR: **Loja**: epiphytic in cloud forest in the Cajanuma Range, alt. 2500-2700 m, July 1973, collected by A. Andreetta, cultivated in Cuenca, 12 July 1977, *C. Luer 1691* (SEL); same collection, cultivated at Paute, 24 Jan. 1989, *C. Luer 14078* (MO); same area, collected by B. Malo, cultivated at Tarqui, 25 May 1988, *C. Luer 13679* (MO); epiphytic in cloud forest 2 km east of Vilcabamba, alt. ca. 1500 m, 3 Sept. 1980, *D. D'Alessandro 80-050* (SEL).
PERU: **Piura**, collected by J. Meza T., 1979, cultivated by W. Königer, Aug. 1984, *C. Luer 10401* (MO); Ayabaca, Randrahuaca, alt. 2960 m, 15 Nov. 1992, *D. Bennett, J. & J. Campoverde 5837* (MO).

This species occurs locally in cloud forests of southern Ecuador, and in northern Peru where it is much more frequent. It is similar to *Masdevallia triangularis* which also occurs in southern Ecuador.

Masdevallia instar is easily distinguished by the cupped flower with a distinct secondary mentum, instead of a flat, widely spread flower seen in *M. triangularis*. The sepals are subacute instead of acute. The lip is shallowly but abruptly constricted below the broad, non-deflexed apex with a low callus, instead of a tall carina on an elongate, acutely deflexed, erose, apical portion of the lip as seen in *M. triangularis*.

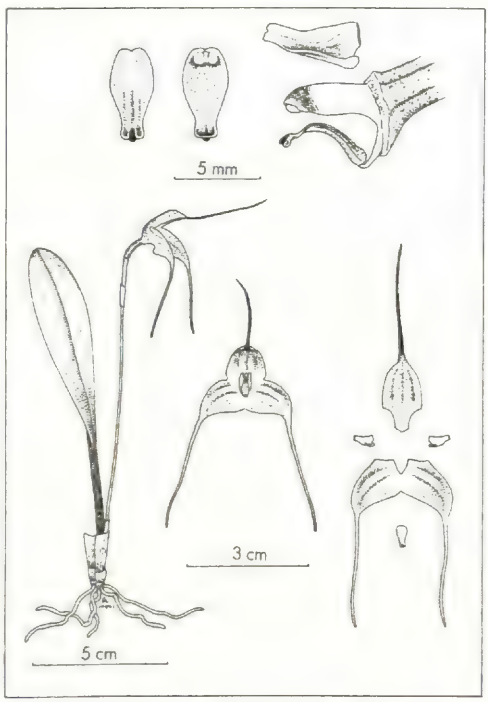


Plate 424. Masdevallia instar

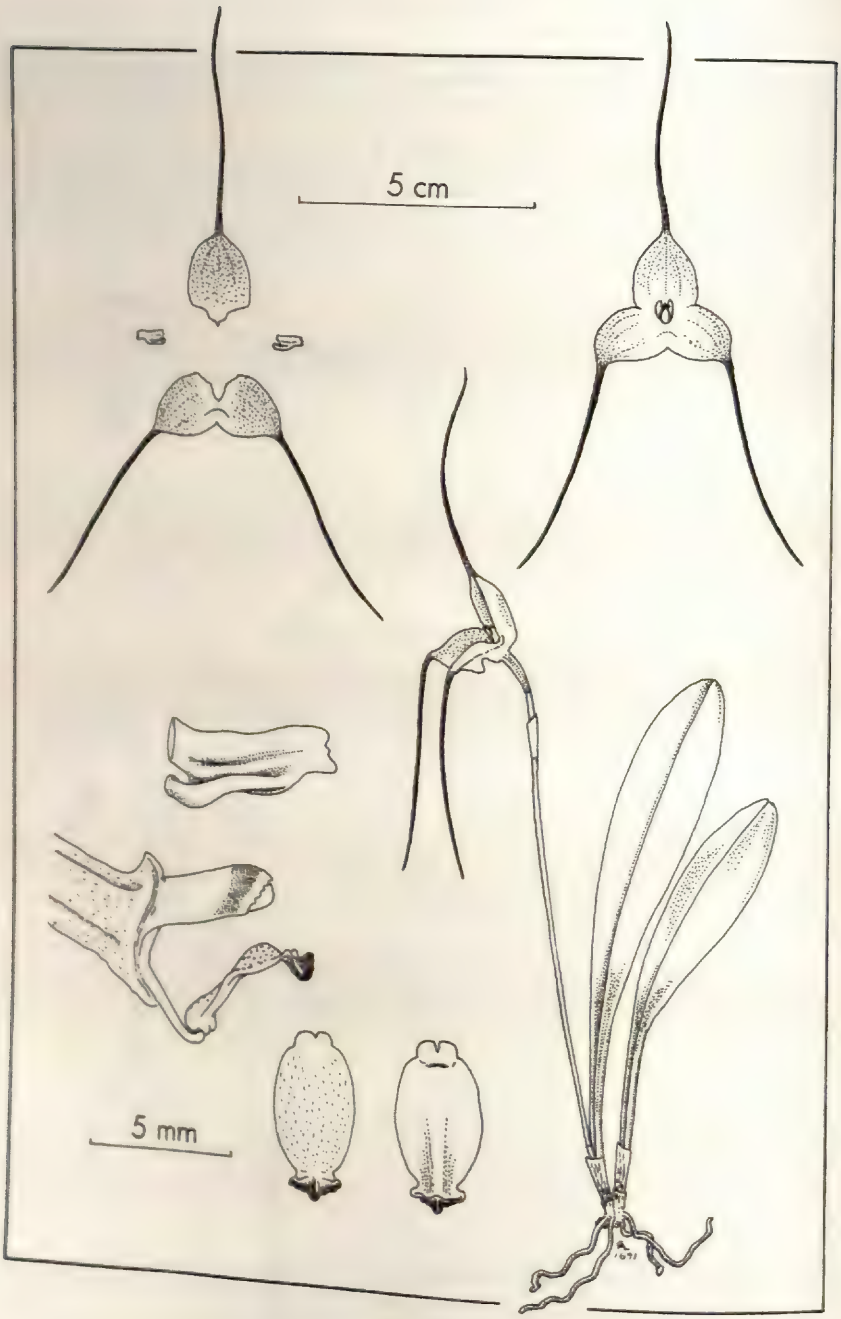


Plate 425. Masdevallia instar

Masdevallia iris Luer & Escobar, Selbyana 7: 71, 1982.

Ety.: From the Latin *iris*, "a rainbow," in reference to colors of the flowers not unlike an iris.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-9.5 cm long including the 2-3.5 cm long petiole, the blade elliptical, obtuse to subacute, 1.8-2.6 cm wide, cuneate below into the channeled petiole. **Inflorescence** a single flower borne by an erect to suberect, slender peduncle 5-7 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 8-10 mm long; ovary 7 mm long; **sepals** yellow, suffused and veined in red-brown, glabrous, the dorsal sepal obovate, 20 mm long, 12 mm wide, 7-veined, connate to the lateral sepals for 10 mm to form a deep, gaping, sepaline cup, the free portion rounded, erose near the junction with the lateral sepals, abruptly contracted at the apex into a slender, erect tail 3-4 cm long, green, turning to orange above the middle, the lateral sepals ovate, oblique, 16 mm long, 12 mm wide, connate 5 mm to form a deep, rounded mentum above the column-foot, the rounded apices contracted into descending tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.5-2.5 mm wide, the apex tridentate, the labellar margin with a winglike carina from an obtuse angle below the apex to a thick, broad, inflexed appendage above the base; **lip** dull white, oblong, 5.5 mm long, 3 mm wide, the rounded apex orange, with a dark purple, finlike carina in the center of the margin, hollow from beneath, the rounded base suffused with rose, hinged beneath; **column** white, suffused with purple, semiterete with longitudinal wings and cucullate apex, 4.5 mm long, the foot 3 mm long with a long, stout, incurved extension.

VENEZUELA: **Táchira**: Alto de Buenavista, alt. 2250 m, 1972, collected by R. Mejia, cultivated by M. & O. Robledo at La Ceja, Colombia, 28 Sept. 1977, *C. Luer 1858* (Holotype: SEL); same collection, *R. Escobar 1496* (JAUM); same collection, 9 Apr. 1988, *C. Luer 13099* (MO). **Portuguesa**: Alto Sucre, Caserio Villa Rosa, 20 Km east of Biscucuy, alt. 1200-1500 m, 16 June 1985, *G. Aymard, N. Cuello & R. Desantiago 3777* (VEN).

This colorful species, apparently restricted to northwestern Venezuela, was first collected by Sr. Roberto Mejia in 1972. It is similar to *M. caudata*, but *M. iris* is identified by smaller flowers striped and suffused with reddish brown on all three long-tailed sepals. The petals are white with a thick, retrorse, basal process. The margin of the apex of the oblong lip is provided with a tall, finlike, hollow callus. The callus of *M. caudata* is smaller and located below the margin. As in *M. caudata*, the apex of the column is hooded.

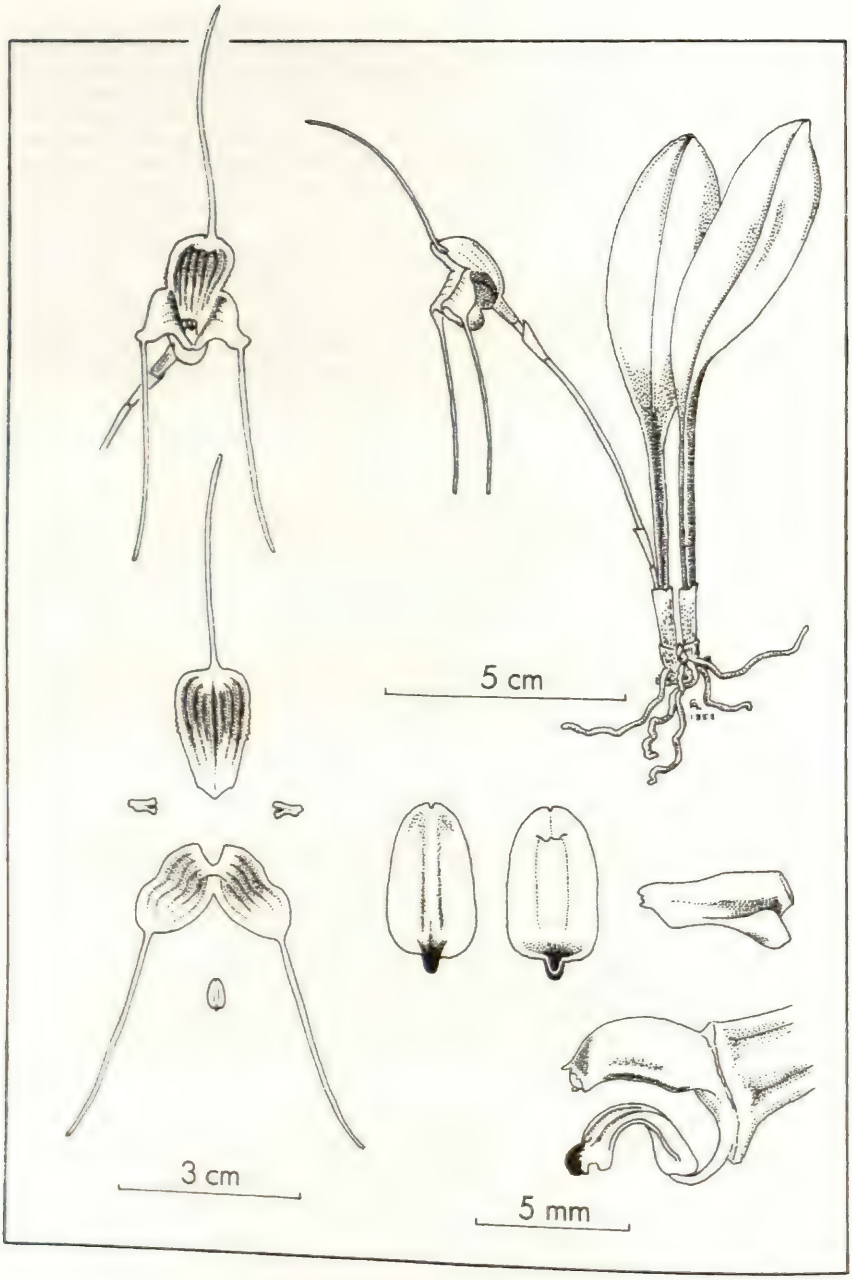


Plate 426. Masdevallia iris

Masdevallia klabochiorum Rchb.f., Gard. Chron. 5(1): 720, 1876, as *klabochorum*.

Ety.: Named in honor of the brothers Klaboch who collected the species.

Syn.: *Masdevallia paisbambae* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 425, 1924.

Ety.: Named for the community of Paisbamba near which the plant was discovered.

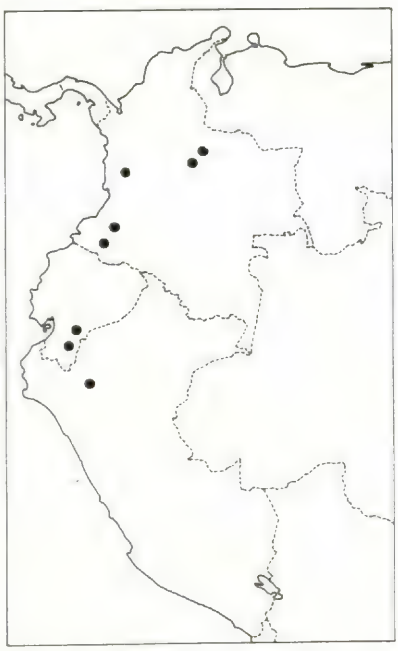
Syn.: *Masdevallia aops* Luer & Malo, Phytologia 42:457, 1979.

Ety.: From the Greek *a-*, "without," and *ops*, "an eye, -eyed," referring to absent "eye-spots" at the base of the lateral sepals.

Syn.: *Masdevallia xanthina* Rchb.f. subsp. *klabochiorum* (Rchb.f.) Luer, Lindleyana 3: 64, 1988.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 0.8-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** coriaceous, erect, petiolate, 4-6 cm long including the petiole 1.5-2.5 cm long, the blade elliptical to broadly elliptical, obtuse to rounded at the apex, 2-2.5 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 4-5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 10 mm long; ovary 7 mm long; **sepals** white, sometimes suffused in pale yellow along the veins, glabrous, the dorsal sepal erect, obovate, concave above the middle, 15-21 mm long, 10-15 mm wide, 3-veined, connate to the lateral sepals for 4 mm to form a shallow, gaping, sepaline cup, the apex rounded, abruptly contracted into a slender, yellowish tail 3-5 cm long, the lateral sepals elliptical, oblique, widely expanded, 14-18 mm long, 9-13 mm wide, connate 3-4 mm to form a transverse fold below the column-foot, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5-6 mm long, 2-2.5 mm wide, the apex truncate, tridentate, the labellar margin with a longitudinal callus, obtusely winglike above the middle, terminating in a thick, retrorse process above the base; **lip** erect, white with purple dots, oblong, 4.5-5.5 mm long, 2.5-3 mm wide, the rounded apex with a purple, marginal callus, the base thickened, rounded, hinged beneath; **column** greenish white, marked with purple, semiterete, 4-5 mm long, the apex minutely denticulate, the foot 4 mm long including the incurved extension.

COLOMBIA: **Cauca**: without locality, 22 May 1876, *Messrs. Klaboch s.n.* (holotype of *M. klabochiorum*: W); near Paisbamba, alt. 2500-2900 m, 21 Feb. 1884, *F.C. Lehmann 3719* (BM, BR, G, type of *M. paisbambae*). **Antioquia**: Urrao, collected by E. Valencia, cultivated at Colomborquídeas, 25 Apr. 1988 *C. Luer 13307* (MO). **Boyacá**: Peña de Gallo, road to Pajarito, alt. 2300-2600 m, collected by R. Escobar 1500, cultivated by M. & O. Robledo at La Ceja, 28 Sept. 1977, *C. Luer 1855* (SEL); Sogamosa, cultivated by M. & O. Robledo at La Ceja, 28 Sept. 1977, *C. Luer 1856* (SEL). **Nariño**: western slopes of Sotará near Paisbamba, alt. 2500-2900 m, 21 Feb. 1884, *F.C. Lehmann 3719* (BR); Morasurco, north of Pasto, alt. 2400 m, collected by R. Escobar, cultivated at Colomborquídeas, 9 May 1985, *C. Luer 11312* (MO). ECUADOR: **Morona-Santiago**: Chiguinda east of Sigsig, alt. 1600-2000 m, *F.C. Lehmann 6537* (K); cloud forest of the eastern cordillera, alt. 1700 m, Apr. 1975, collected by B. Malo, cultivated at Tarqui, 9 July 1977, *C. Luer 1657* (holotype of *M. aops*: SEL). **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13610* (MO).
PERU: **Amazonas** ?: Villa Rica, alt. 1800 m, collected June 1990 by J. Campoverde, cultivated Oct. 1992 by *I. Rolando 001* (MO), C. Luer illustr. 16601.



This species is variable in its wide distribution from Colombia through Ecuador into Peru. It was first recognized by Reichenbach when he described a collection from southern Colombia by the Klaboch brothers. It is one of many species that is basically similar to *M. xanthina*, but the sepals are white and without an "eye-spot" at the base of the lateral sepals.

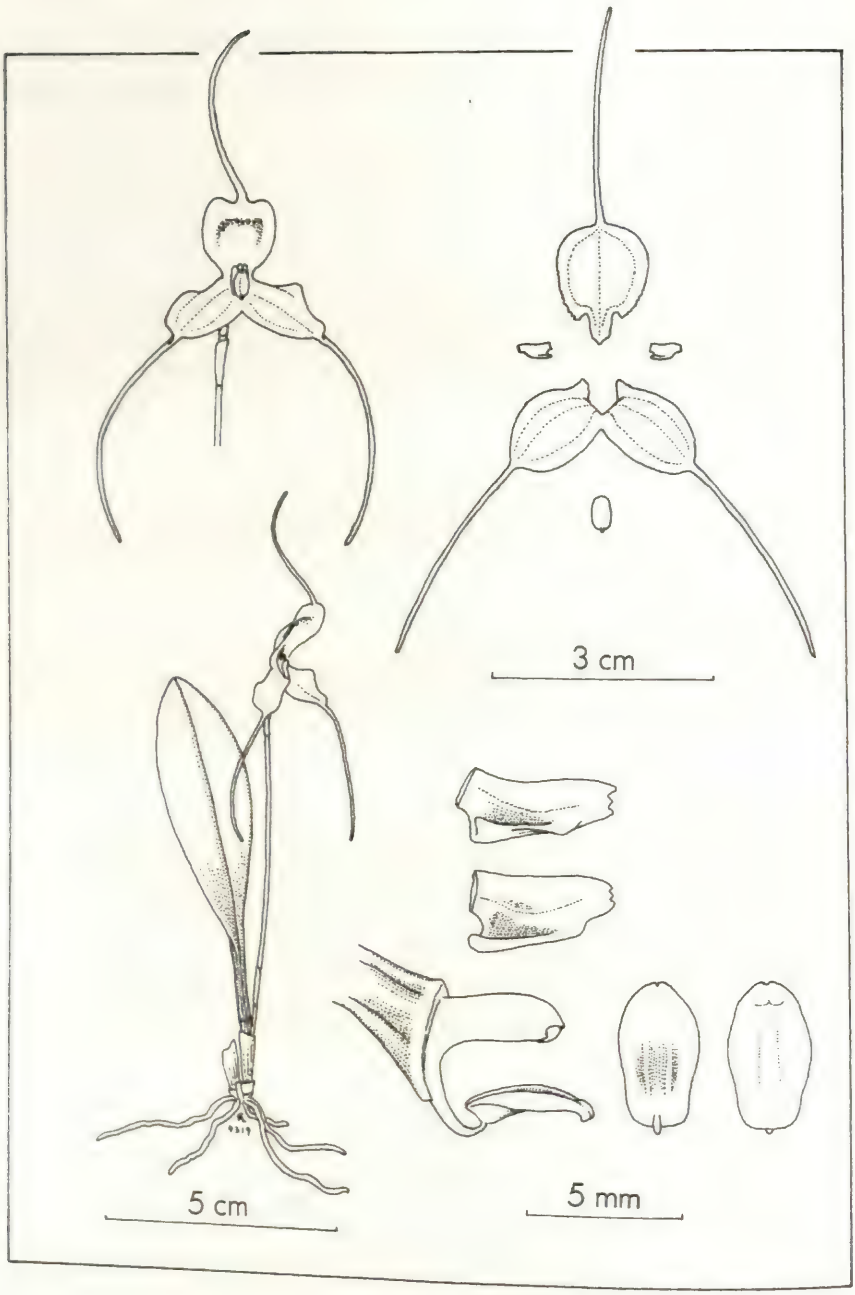


Plate 427. Masdevallia klabochiorum

Vegetatively, it is characterized by elliptical, petiolate leaves borne by short ramicauls that are usually blackened, as commonly seen in many species, by what appears to be a fungas. The petioles and ramicauls of plants in cultivation lose the blackish color and become green.

The flowers are white, and held by slender peduncles about as high as the leaves. The are proportions of the floral parts are variable, hardly no two populations being exactly the same. The dorsal sepal is more or less concave above the middle, and it stands erect with a long, slender, yellowish tail. The lateral sepals are partially connate and expand beyond a shallow, sepaline cup, and spread their equally long, slender tails. The positions of the lateral sepals vary from widely expanded to reflexed. A dark "eye-spot" at the base of the lateral sepals, so frequently seen in similar species, including *M. xanthina*, is absent, suggesting a different pollinator. Similar, but often slightly smaller, white flowers with the "eye-spot," are identified as the color-variation of *M. xanthina* known as *M. pallida*. No pollinators are known.

Typical for the subsection *Caudatae*, the lip and column, flanked by the petals, stand more or less erect in the center of the sepaline cup. The petals are white with a marginal callus, more or less winged above the middle, and ending with a thick, blunt process that curves inward below the base of the column. The lip is simple, elliptical to oblong with a dark marginal callus at the tip.

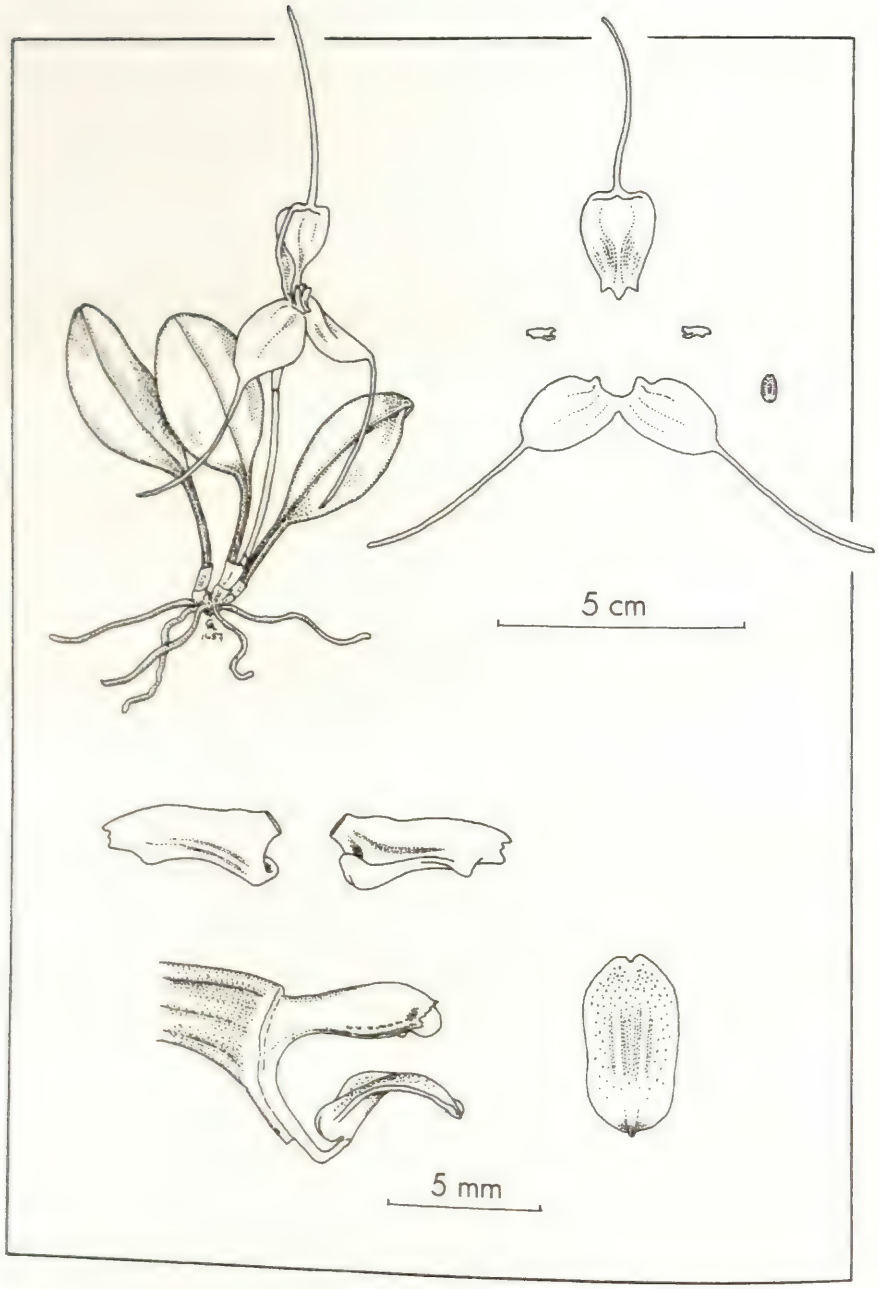


Plate 428. Masdevallia klabochiorum
(*Masdevallia aops*)

Masdevallia leonii D.E.Benn. & Christenson, Ic. Orch. Peruv., Pl. 683, 2001.

Ety.: Named for M. Leon M., co-collector of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, ca. 1 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, the blade elliptical, subacute, 4.3 cm long, 1.5 cm wide, cuneate below into the petiole 1.2-1.7 cm long. **Inflorescence** a single flower produced by a slender, erect peduncle 8 cm long, with a bract near the base, from the low on the ramicaul; floral bract tubular, 10 mm long; pedicel 12 mm long; ovary 6 mm long; **sepals** cream-colored, with a dark spot at the base of the laterals, glabrous, the dorsal sepal suborbicular, concave, arcuate-cucullate, minutely rugose above the middle, 11 mm long, 11 mm wide expanded, 5-veined, connate to the lateral sepals for 2 mm to form a gaping sepaline cup, the apex obtuse, reflexed, contracted into a slender tail 16 mm long, the lateral sepals suborbicular, oblique, 10 mm long, 7.5 mm wide, with 3 veins branching into 6, connate 4 mm, the apices obtuse, contracted into slender tails 15 mm long; **petals** suboblong, 3.5 mm long, 1.75 mm wide, the apex obliquely truncate with rounded corners, the labellar margin with a longitudinal callus ending in a broad, thick, subacute angle at the base; **lip** subquadrate, 2.5 mm long, 3 mm expanded, 2 mm wide, the apex transversely truncate with the margin shortly recurved, without a central callus, the disc curved, featureless, the base rounded, hinged beneath by a short, filamentous strap from the tip of the extension of the column-foot; **column** thick, semiterete, 3 mm long, the foot equally long, with an incurved extension.

PERU: **PUNO**: Sandia, district of San Juan de Oro Jaen, alt. 1900 m, 24 Sept. 1995, *M. Leon, B. Collantes & O. Cjuno 721* (Holotype: MO), C. Luer illustr. 19490, not previously published.

This species is apparently endemic in southeastern Peru, where it is known from only collection. Vegetatively not remarkably distinct from other species of the subsection, the shallowly cupped flower is carried beyond the leaves. The dorsal sepal is concave, cucullate and minutely rugose within. The tail, a little longer than the blade, is acutely reflexed, while similar tails of the lateral sepals are descending. The column and petals stand together erect and exposed in the center of the cup. The lip is subquadrate without expansion of the broad, shortly recurved apex. The base is connected beneath to the incurved extension of the column foot by a very slender but short strap.

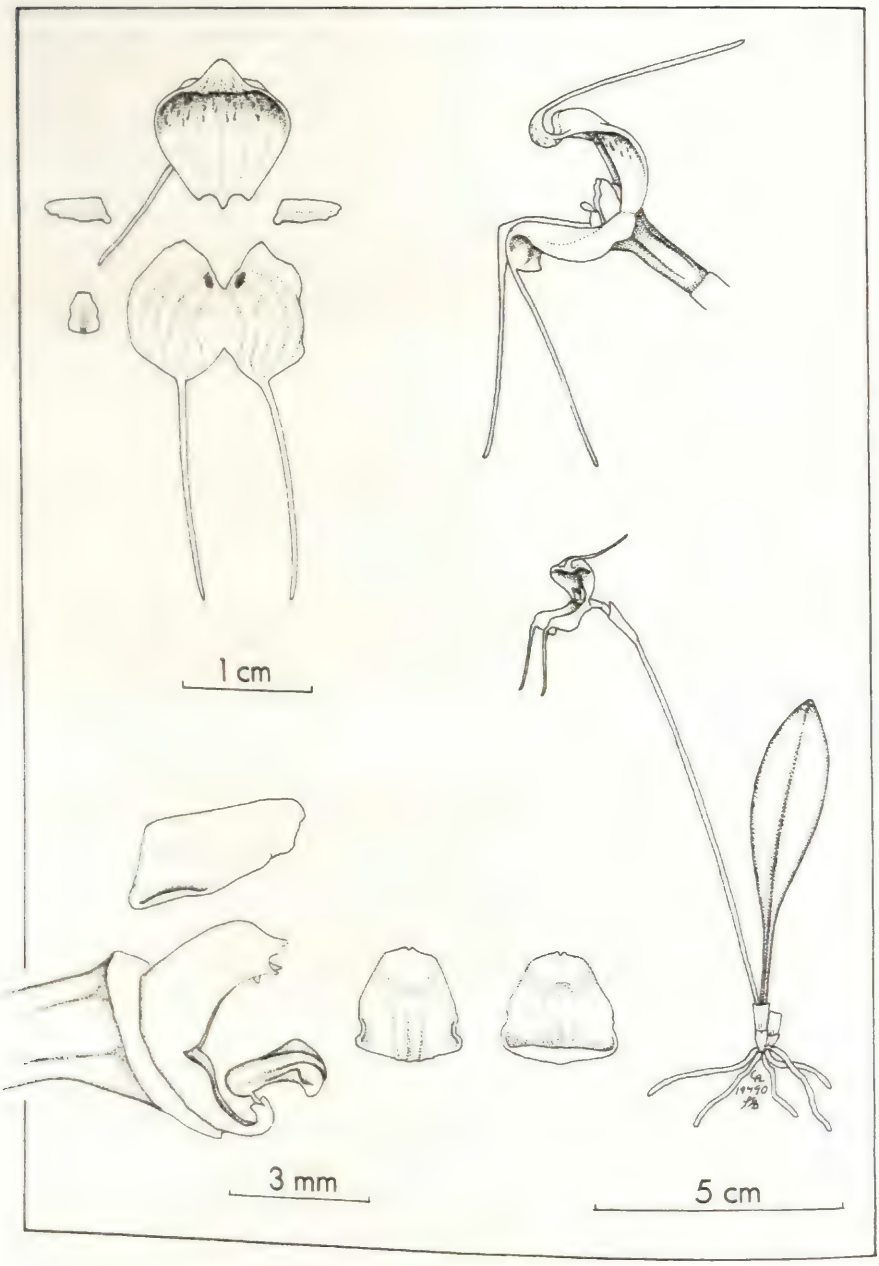


Plate 429. Masdevallia leonii

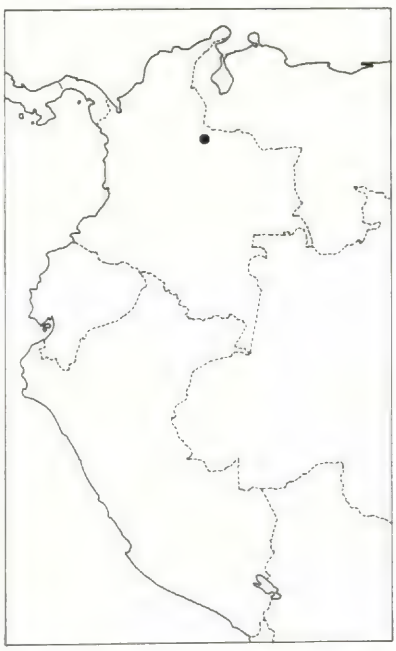
Masdevallia ludibunda Rchb.f., Gardners' Chronicle 17(1): 179, 1882.

Ety.: From the Latin *ludibundus*, "sportive," probably in allusion to the belief at that time, that it was possibly a natural hybrid between *M. caudata* and *M. estradae*.

Syn.: *Masdevallia estradae* var. *ludibunda* (Rchb.f.) Godefroy, Orchidophile 1: 270, 1881.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-10 cm long including the petiole 2-4 cm long, the blade elliptical, subacute to obtuse, 1.2-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower produced by a slender, erect peduncle 6-9 cm long, with a bract near the base, from the low on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 6-15 mm long; ovary 5-6 mm long; **sepals** microscopically pubescent within, white, to white or yellow-green suffused with rose-purple, rose-purple, or yellow, the dorsal sepal oblong, concave, carinate, arcuate-cucullate, 15 mm long, 7 mm wide expanded, connate to the lateral sepals for 2 mm to form a gaping sepaline cup, the apex subacute, contracted into a deflexed, slender, yellowish tail 25-33 mm long, the lateral sepals oblong, oblique, 11 mm long, 6 mm wide, connate basally for 2 mm, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.5-2 mm wide, the truncate apex shallowly tridenticulate, the labellar margin with a longitudinal callus ending in a broad, subacute tooth at the base; **lip** white, oblong, 4.5 mm long, 2 mm wide, the apex purple-black, truncate, shortly recurved, with a central callus, the disc shallowly sulcate between a low pair of converging calli, the base rounded, hinged beneath; **column** white suffused with purple, semiterete, 4 mm long, the foot 2 mm long, with a long, incurved extension.

COLOMBIA: without locality, imported with plants of *M. shuttleworthii* by F. Sander, cultivated by *Sir Trevor Lawrence s.n.* (Holotype: W); without locality, cultivated at J & L Orchids, Easton, CT., 21 Apr. 1978, *C. Luer 2896* (SEL). **Norte de Santander**: epiphytic in cloud forest near the pass of Alto de Santa Inez, alt. 2100 m, collected 13 May 1984, by C. Luer, J. Luer & R. Escobar, cultivated at Colomborquídeas, 8 May 1985, *C. Luer 11302* (MO).



This species was imported by F. Sander & Co. of St. Albans, England, with plants of *M. shuttleworthii* (*M. caudata*) from Colombia without specific locality.

Masdevallia ludibunda is similar to *M. estradae*, but the former is distinguished by the larger, concave, carinate, arcuate, more or less hooded dorsal sepal with the tail pointing downward. Both species are variable vegetatively and in the size of the flowers. The flowers of *M. ludibunda* are particularly variable in color. The description of the type by Reichenbach indicates yellowish sepals suffused with brown. Pure yellow and pure purple variations are known as well as whitish or pale yellow forms variously suffused with purple.

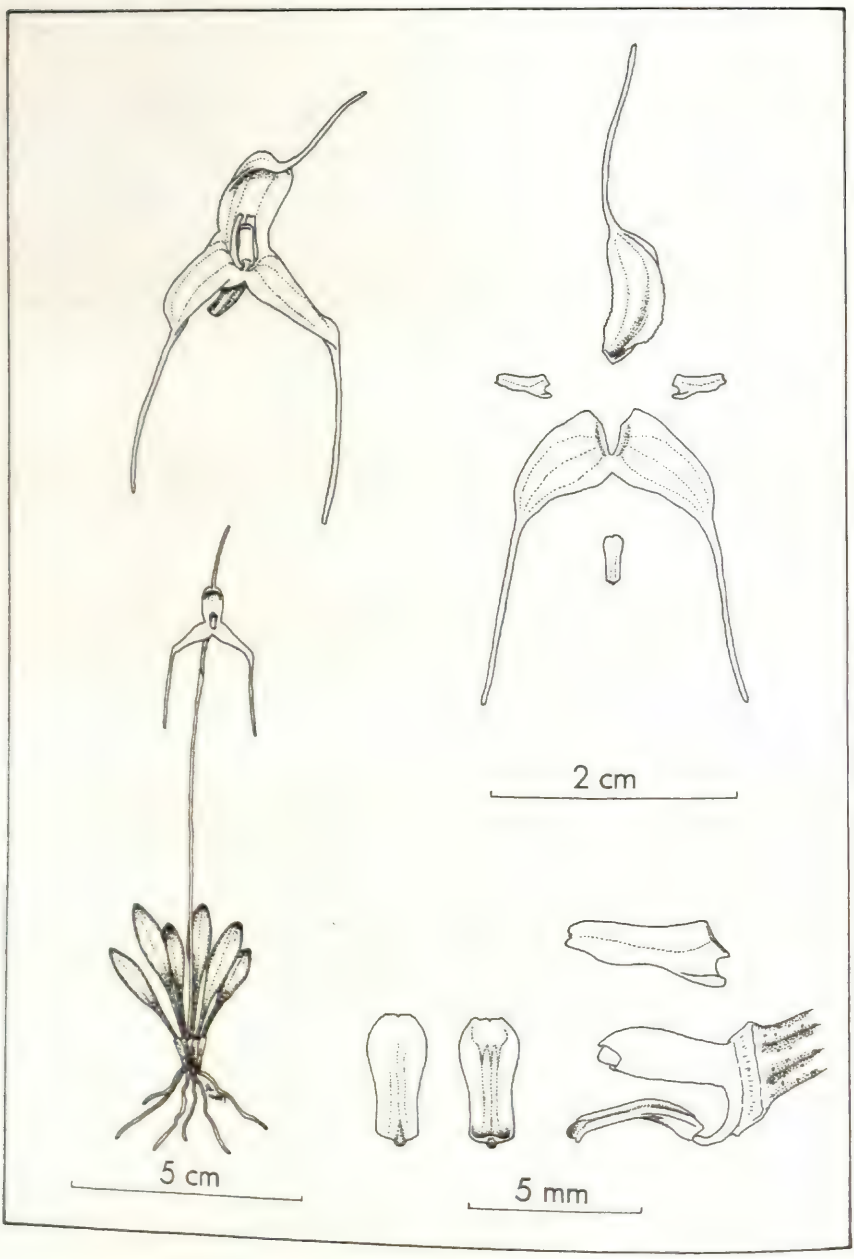


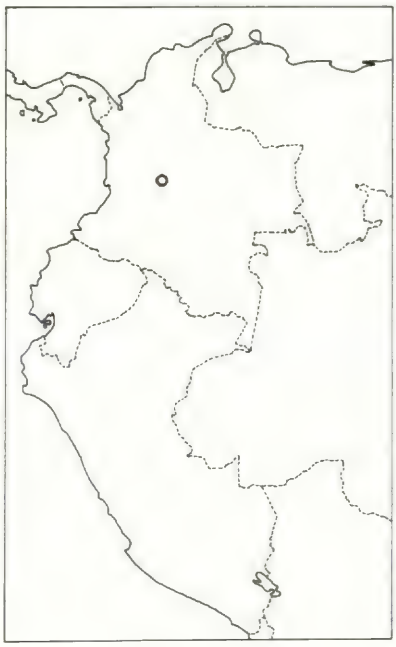
Plate 431. Masdevallia ludibundella

Masdevallia ludibundella Luer & Escobar, Lindleyana 10: 120, 1995.

Ety.: From the Latin diminutive for *ludibundus*, in allusion to the resemblance of the plant to a minute *Masdevallia ludibunda*.

Plant very small, presumably epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, blackish, 7-10 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 2-3 cm long including the petiole 1-1.2 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 0.6-0.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower produced by a slender, erect peduncle 6-7 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7-8 mm long; pedicel 14-15 mm long; ovary 5-6 mm long; **sepals** glabrous, white, lightly suffused with rose, the dorsal sepal oblong, carinate, concave, arcuate-cucullate, with minutely erose margins, 11 mm long, 5 mm wide expanded, connate to the lateral sepals for 2 mm to form a gaping sepaline cup, the apex obtuse, contracted into a suberect, stout, yellowish tail 15 mm long, the lateral sepals oblong-ovate, oblique, 10 mm long, 5 mm wide, connate basally for 1.5 mm, the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 4.5 mm long, 1.5-2 mm wide, the truncate apex shallowly trilobulate, the labellar margin with a longitudinal callus ending in a retrorse process at the base; **lip** white, oblong, 4 mm long, 1.75 mm wide, the apex brown, truncate, shortly recurved, with a central callus, the disc shallowly sulcate between a low pair of parallel calli, the base rounded, hinged beneath; **column** white, semiterete, 3.5 mm long, the foot 1 mm long, with an incurved extension.

COLOMBIA: without collection data, obtained from the late Don Richardson of Manhasset, New York, ca. 1975, cultivated at Colomborquídeas, 16 May 1993, *C. Luer 16881* (Holotype: MO).



This species was obtained by Colomborquídeas about 1975 from Don Richardson who maintained a large collection of orchids at "Greentree," Manhasset, Long Island, NY. The plant has thrived in cultivation, maintaining the dwarf habit. Although the flowers are very similar to those of *M. ludibunda*, the habit of this species is distinct: a very small, densely caespitose plant with leaves less than three centimeters long including the petioles. The flowers are borne high above the leaves by peduncles twice to thrice as long as the leaves. Except for the smaller size, short tails about 15 millimeters long, and a suberect dorsal sepal with a suberect instead of decurved tail, the morphology of the sepals, petals and lip are essentially the same.

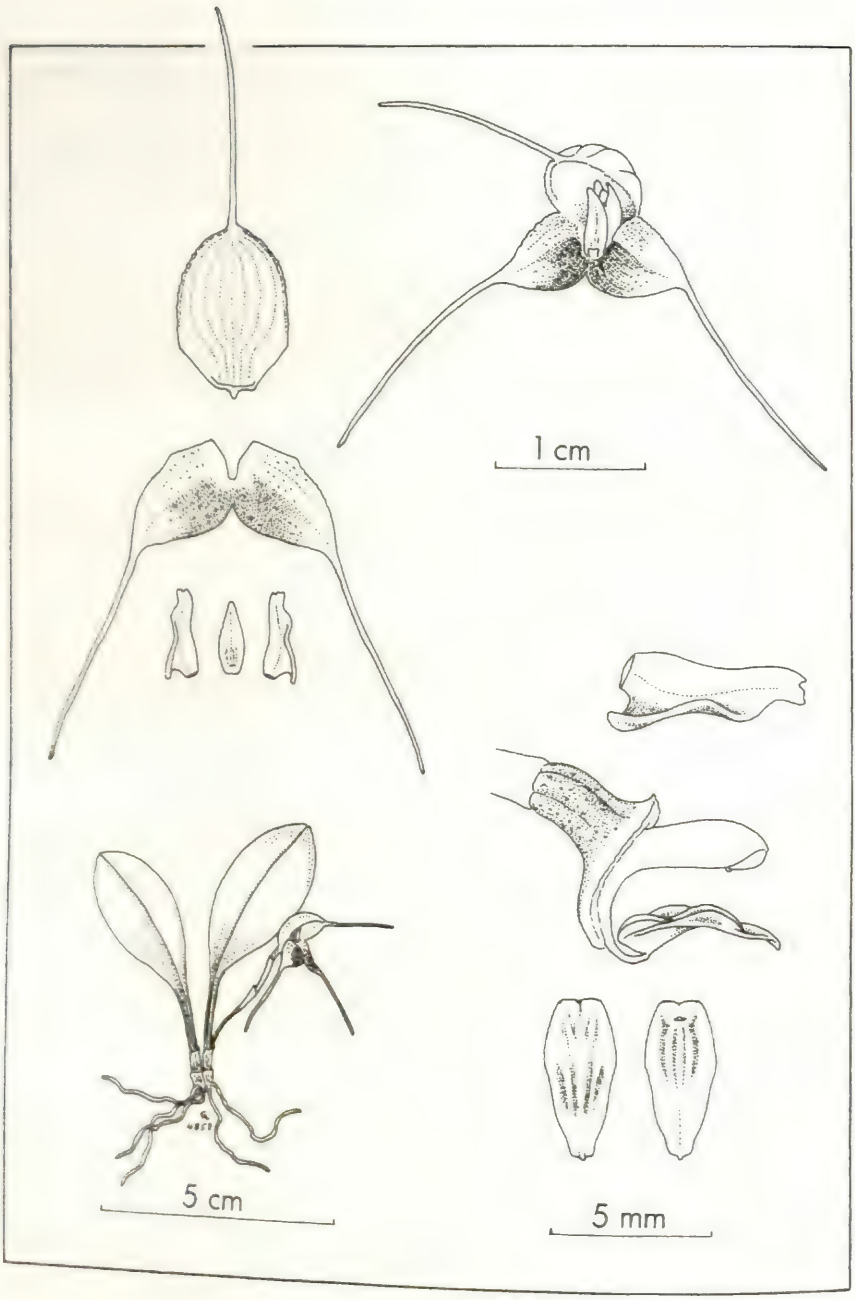


Plate 433. Masdevallia lychniphora

Masdevallia lychniphora Königer, Die Orchidee 31: 116, 1980; emend. 36: 87, 1985.

Ety.: From the Greek *lychniphoros*, "ruby bearing," in allusion to the colors of the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, erect, 15-17 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3-6 cm long including the 2-2.5 cm long petiole, the blade elliptical, obtuse, 1.5-2 cm wide, the base cuneate into the slender petiole. **Inflorescence** a solitary flower, borne facing down by a slender, more or less horizontal peduncle 1.2-2 cm long, with a tubular bract above the base, from low on the ramicaul; floral bract oblique, 6-7 mm long; pedicel 12-13 mm long; ovary 3 mm long; **sepals** glabrous, with the margins minutely erose, the dorsal sepal white, rosy yellow within, ovate, concave, obtuse, 12 mm long, 9 mm wide expanded, connate to the lateral sepals for 3.5 mm to form a shallow, gaping cup, the apex rounded, abruptly contracted into a slender, yellow-green tail 15 mm long, the lateral sepals light yellow, suffused with red on the inner halves, ovate, oblique, 9.5 mm long, 6 mm wide, connate 1.5 mm, the apices acute, contracted into slender, yellow tails 16 mm long; **petals** white, irregularly oblong, 6 mm long, 1.75 mm wide above the base, the narrowed apex truncate, indistinctly dentate, the labellar margin with a longitudinal, wing-like callus ending in a retrorse process above the base; **lip** white, suffused with red toward the base, ovate, 5 mm long, 2.25 mm wide, the apex obtuse with with a minute, midline callus, the disc shallowly sulcate between a low pair of calli, the base truncate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long with a slender, incurved extension.

PERU: **Amazonas**: between Chachapoyas and Pomacochas, alt. 2000 m, Aug. 1979, *W. Königer, H. Königer, J. Meza et al. K-20b* (Holotype: SEL; Isotypes K, M, USM, W, Herb. H. Königer); same collection, cultivated by W. Königer in Munich, Germany, Nov. 1979, *C. Luer 4858* (SEL); collected out of flower with *Masdevallia decumana*, imported by Bergstrom, purchased by Carter & Bartle, cultivated in Trenton, KY, 15 April 1991, *C. Luer 15268* (MO).

This species is apparently endemic in a small, forested area in Amazonian Peru. Although similar in many respects to other small species of the subsection *Caudatae*, it is readily identified by the ruby-red suffusion on the inner halves of the otherwise yellow lateral sepals. The flowers more or less face downward on short, horizontal peduncles. The calli of the petals are thick with prominent basal processes that touch above the base of the lip. The lip is ovate with the apex narrowly obtuse.

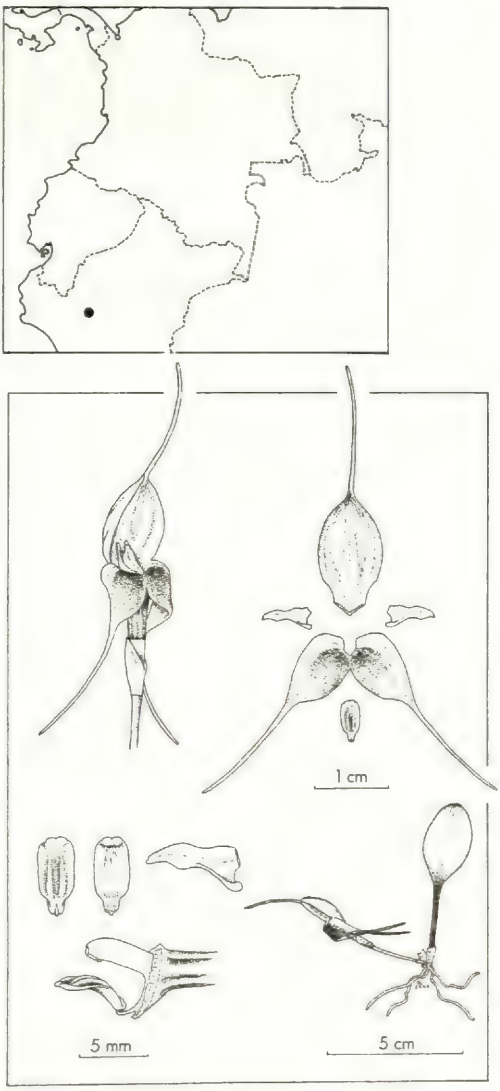


Plate 432. Masdevallia lychniphora

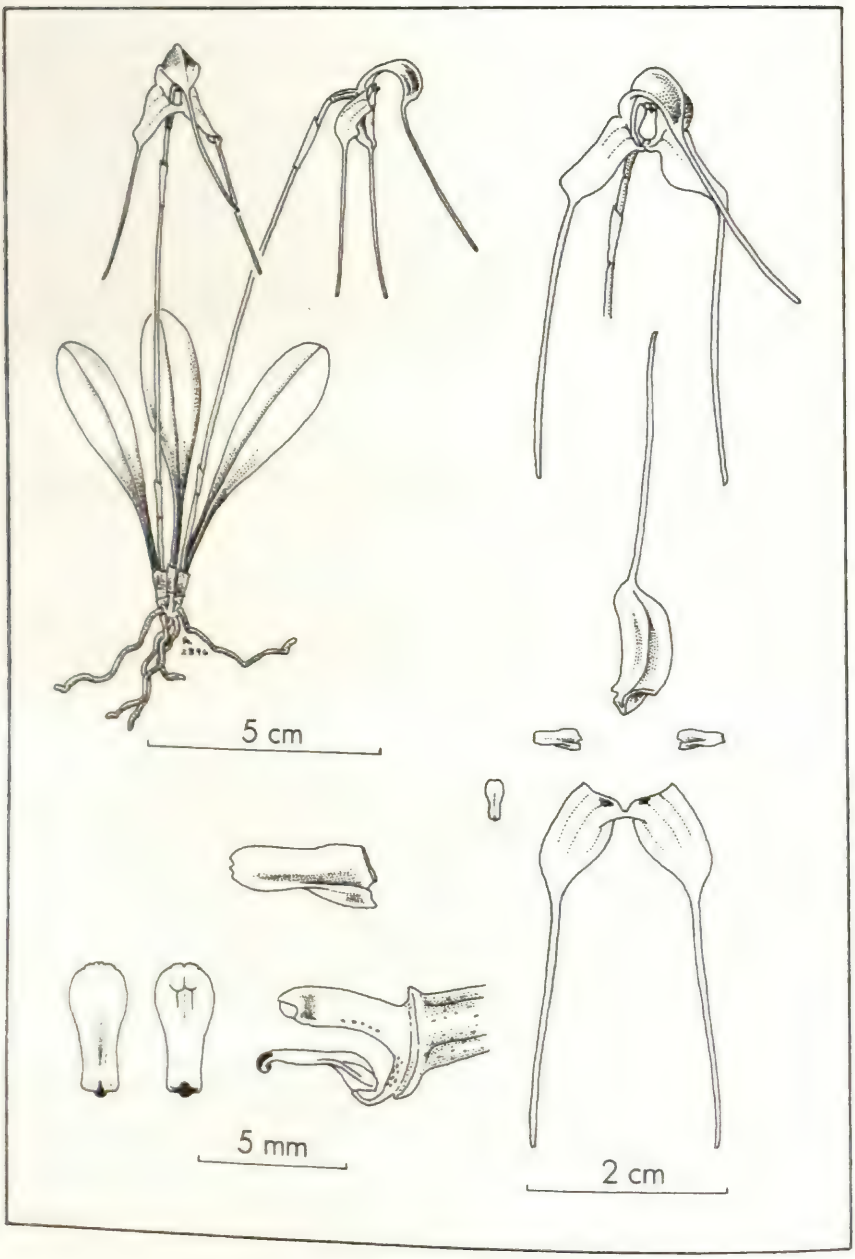


Plate 430. Masdevallia ludibunda

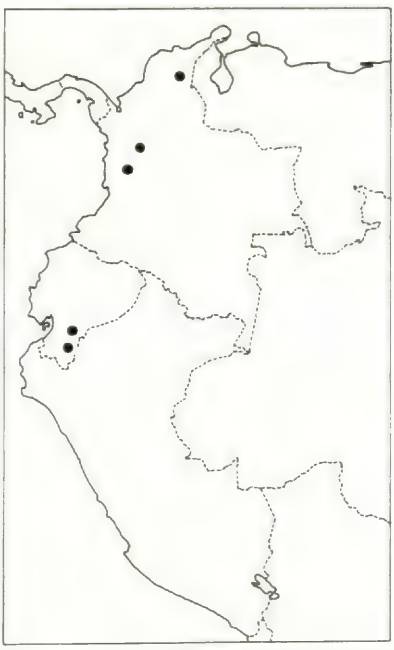
Masdevallia mandarina (Luer & Escobar) Luer, comb. nov.

Bas.: *Masdevallia xanthina* Rchb.f. subsp. *mandarina* Luer & Escobar, Lindleyana 3: 64, 1988.

Ety.: From Far East origin, "mandarin," referring to the red-orange color of the fruit of the Chinese mandarin orange, *Citrus reticulata*.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-8 cm long including the petiole 1.5-3 cm long, the blade elliptical, obtuse, 1.5-2.3 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary, showy flower borne by an erect to suberect, slender peduncle 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7-10 mm long; pedicel 9-12 mm long; ovary 4-6 mm long; **sepals** orange, suffused with red, glabrous, the dorsal sepal obovate, concave, 14-20 mm long, 9-15 mm wide, connate to the lateral sepals for 3-5 mm to form a shallow, widespread cup, the rounded apex abruptly contracted into an erect, slender, yellow to orange-brown tail 3.5-5 cm long, the lateral sepals ovate, oblique, 11-17 mm long, 8-14 mm wide, connate 2-5 mm, sometimes with a small, obscure, brown spot at the base, the rounded apices contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5.5-6 mm long, 1.5-2.5 mm wide, the truncate apex tridentate, the labellar margin with a longitudinal carina, obtusely angled above the middle and produced into a thick, incurved tooth above the base; **lip** erect, white with purple flecks, elliptical-oblong, 5-6 mm long, 2.5-3 mm wide, the apex rounded with a dark purple, marginal callus, the base rounded, hinged beneath; **column** white, marked with purple at the toothed apex, semiterete, 4-5 mm long, the foot 2 mm long with an incurved extension.

COLOMBIA: **Antioquia**: epiphytic in forest near Yarumalito, alt. 2350 m, 15 May 1985, *C. Luer, R. Escobar & E. Valencia 11383* (Holotype: MO; Isopype: JAUM); epiphytic in forest near Urrao, cultivated by M. & O. Robledo at La Ceja, 3 Oct. 1977, *C. Luer 1903* (SEL). **Cesar**: Sierra Nevada de Santa Marta, epiphytic near Puerto Bello, alt. 1600 m, Jan. 1978, collected by Sergio Restrepo, cultivated at Colomborquídeas, 22 Nov. 1981, *C. Luer 6755* (SEL): Livornia, Playón, alt. 2000 m, collected by E. Valencia July 1987, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13004* (MO).
ECUADOR: **Morona-Santiago**: Valle del Paute, alt. 2200 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13641* (MO). **Zamora-Chinchipe**: Numbala, collected by B. Malo, cultivated at Tarqui, 25 May 1988, *C. Luer 13684* (MO).



The typical Colombian *Masdevallia xanthina* is characterized by widely spread, light yellow sepals with a dark patch of color at the base of the lateral sepals, presenting as a prominent pair of "eye-spots," probably a target for the pollinator. Plants with similar but orange flowers without a spot at the base of the lateral sepals are treated here as *M. mandarina*. Plants with similar but white flowers without a spot at the base of the lateral sepal are treated as *M. klabochiorum*. Probably different pollinators are utilized. All three species occur locally in Colombia and in Ecuador. Similar plants from Peru with purple sepals are treated as *M. cloesii*. Except for the distinctive colors, the four taxa are practically indistinguishable.

A similar problem of white and orange flowers occurring in morphologically similar *Platanthera blephariglottis* Lindl. and *P. ciliaris* (L.) Lindl. is met in these terrestrial species of North America.

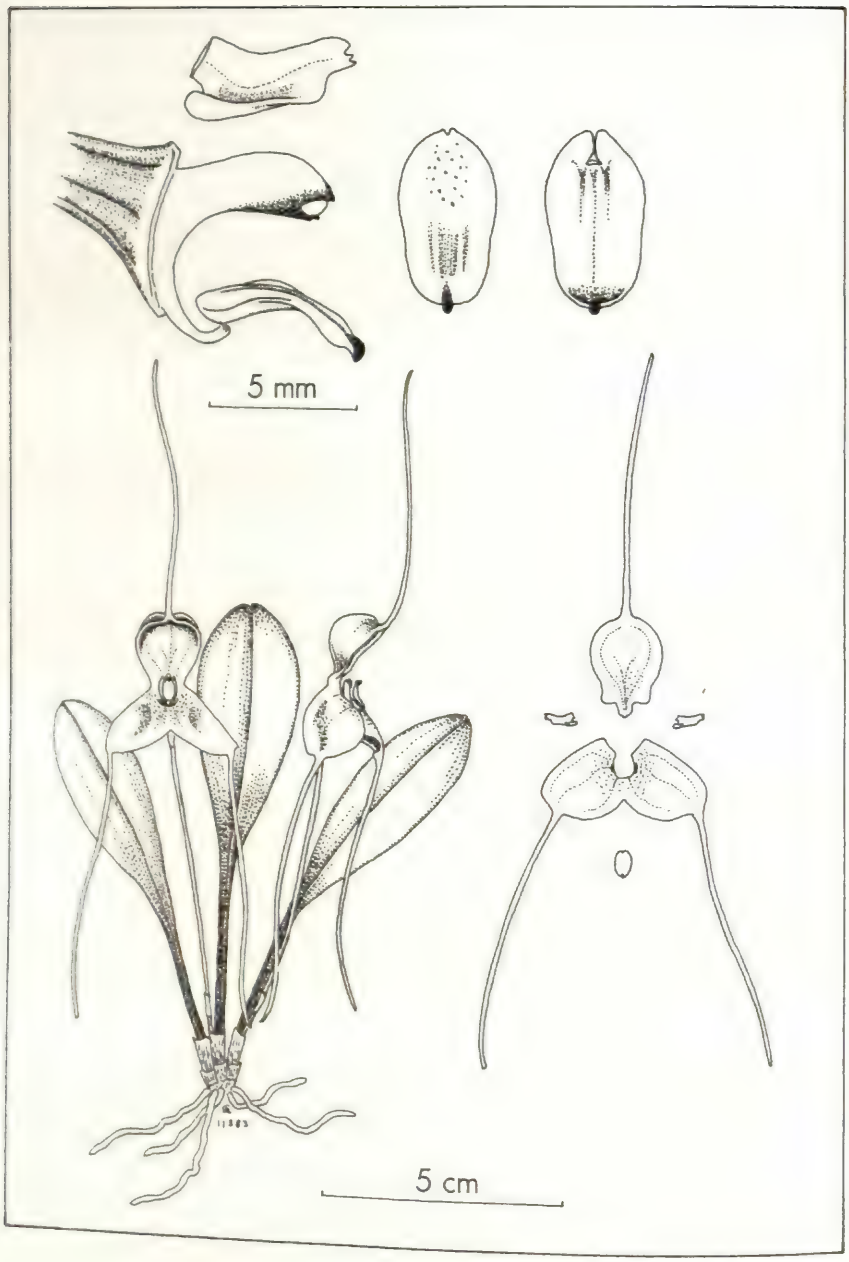


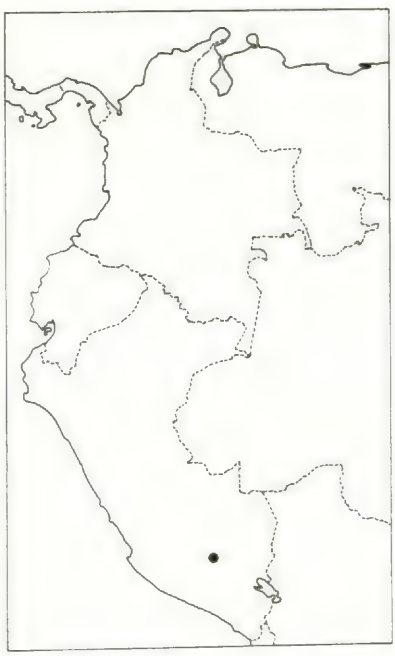
Plate 434. Masdevallia mandarina

Masdevallia marizae Luer & Rolando, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 124, 2000.

Ety.: Named for Mariza Rolando, wife of Isaías Rolando, of Lima, Peru.

Plant medium in size, epiphytic, caespitose; roots stout. Ramicauls stout, erect, 2.5-3.5 cm long, enclosed by a loose, tubular sheath and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, long-petiolate, 8-10 cm long including the petiole 1.5-2 cm long, the blade elliptical, subacute, 3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a peduncle 12 cm long, with a sheath above the base, from low on the ramicaul; floral bract 10 mm long; pedicel 15 mm long; ovary 6 mm long; **sepals** pale rose, diffusely and intensely dotted with purple, the dots becoming minute toward the apices, the dorsal sepal ovate, concave, 14 mm long, 12 mm wide, 3-veined, the apex round, contracted into a yellow-green, forwardly directed tail 4.5 cm long, connate to the lateral sepals for 6 mm, the lateral sepals spreading, oblong, oblique, obtuse, 28 mm long, 15 mm wide, 3-veined, connate 12 mm, the apices contracted into tails 3-4 cm long, similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less oblong, obtuse, shallowly retuse, the labellar margin with a longitudinal callous terminating in a retrorse process at the base, 4.5 mm long, 1.75 mm wide, 1-veined; **lip** rose, diffusely dotted with purple, ovate-ovoid, convex, 4 mm long, 3 mm wide, the apex obtuse, the disc shallowly sulcate, the base rounded, thickened beneath, hinged to the column-foot; **column** white, stout, 4 mm long, the foot 2 mm long with an incurved extension, the anther and stigma ventral.

PERU: **Cuzco**: Urubamba, collected by I. Rolando and A. Alfieri, Oct. 1999, flowered in cultivation by M. Rao in Wilmington DE, 17 Mar. 2000, *C. Luer 19281* (Holotype: MO); lower elevations of the Historic Sanctuary of Machu Picchu, Jan. 2000, *Norma Salinas s.n.* (MO); Urubamba, Pampacahua, lithophytic, alt. 2400-2700 m, 22 Mar. 2000, *M. Quispe 001* (prepared by R. Fernández) (MO).



This species appears similar to *M. decumana*, but it is readily distinguished from the latter by the larger habit and long peduncle that extends the flower beyond the tips of the leaves. The flowers are similar with a dorsal sepal about half the length of broad lateral sepals. The sepals are similarly diffusely dotted with purple, but they are not as widely expanded as in *M. decumana*. Instead of subquadrate and flat, the lip of *M. merizae* is ovoid and convex.

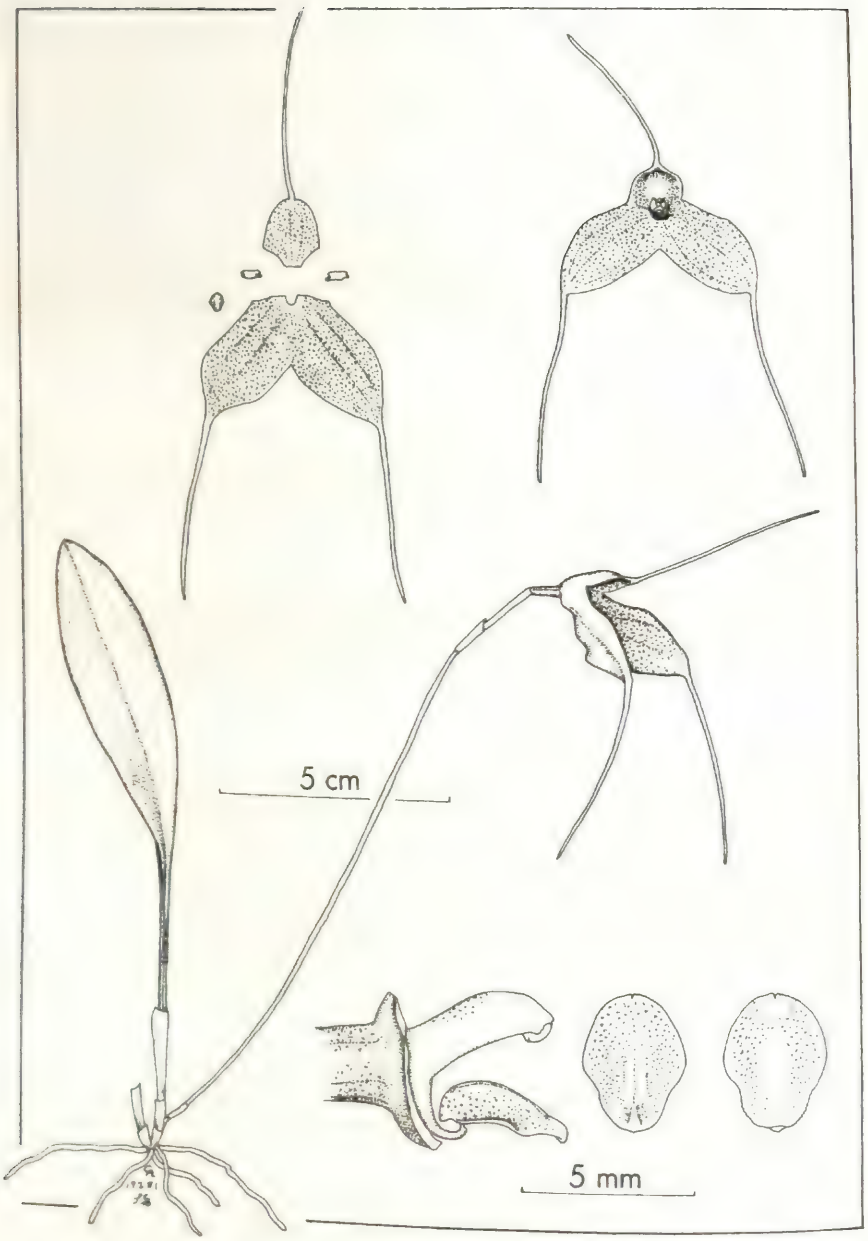


Plate 435. Masdevallia marizae

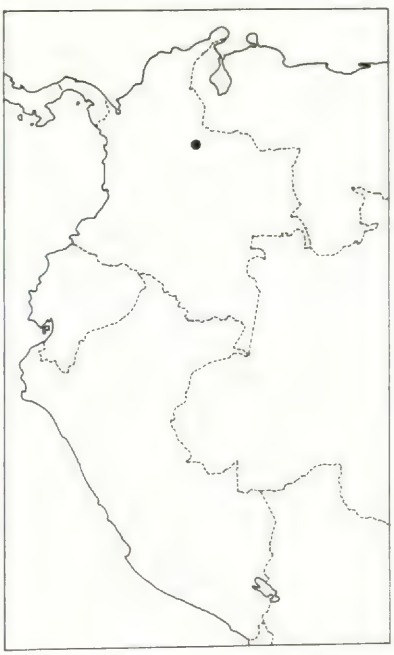
Masdevallia nivea (Luer & R.Escobar) Luer & R.Escobar, Thesaurus Masdevalliarum 13: t.9, 1989.

Bas.: *Masdevallia purpurella* Luer & Escobar, subsp. *nivea* Luer & R.Escobar, Lindleyana 3: 55, 1988.

Ety.: From the Latin *niveus*, "snow white," referring to the pure white flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 10-12 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 3.5-5.5 cm long including the petiole ca. 1 cm long, the blade elliptical, obtuse, 1.3-1.8 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary, snow white flower borne by a slender, erect peduncle 4-4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10-11 mm long; pedicel 11 mm long; ovary green, 4 mm long; **sepals** white, yellowish toward the base, glabrous, the margins microscopically erose, the dorsal sepal obovate-suborbicular, concave, 12 mm long, 8 mm wide, connate to the lateral sepals for 2 mm to form a shallow, gaping, sepaline cup, the rounded apex contracted into an erect, slender, light yellow-green tail 3.5 cm long, the lateral sepals oblong, oblique, 10 mm long, 8 mm wide, connate 2 mm, forming a mentum with the column-foot, the apices rounded, contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.5-2.5 mm wide, the apex thin, obtusely truncate, the labellar margin with a longitudinal, winglike carina, produced into a thick, incurved process above the shortly unguiculate base; **lip** white, elliptical, 4.75 mm long, 2.6 mm wide, the apex round with a small callus near the margin, the base round, hinged beneath; **column** greenish white, semiterete, 4.5 mm long, the foot 2.5 mm long with a short, incurved extension.

COLOMBIA: **Santander**: epiphytic in cloud forest southeast of Bucaramanga toward Guaca, alt. 2840 m, 6 Nov. 1981, collected by C. Luer, J. Luer, and R. Escobar, flowered in cultivation W. Königer in Munich, Germany, 30 Sept. 1987, *C. Luer 12960* (Holotype: MO).



This small, white-flowered species is locally abundant in the cloud forests of high altitudes in the Eastern Cordillera of Colombia. It is distinguished from *M. purpurella* by the longer, erect peduncles that usually hold the flowers above the leaves. In the latter the peduncles are usually shorter and suberect, bearing the flower lower than and among the leaves. The snow white sepals of *M. nivea* are more widely spread, less deeply connate, with rounded apices of the lateral sepals instead of acute. The petals, lip and column stand erect in the gaping, sepaline cup, while in *M. purpurella* they are held more or less horizontally in a less widely spread sepaline cup.

Masdevallia nivea is also similar to the larger, widely distributed, white-flowered *M. klabochiorum*, but the former is distinguished by the smaller size, both vegetative and floral, and the inflexed apex of the large tooth of the petal. In appearance, it is most similar to the white, small-flowered, Ecuadorian *M. bottae*, from which it is distinguished by the inflexed apex of the tooth of the petal and the narrower lip.

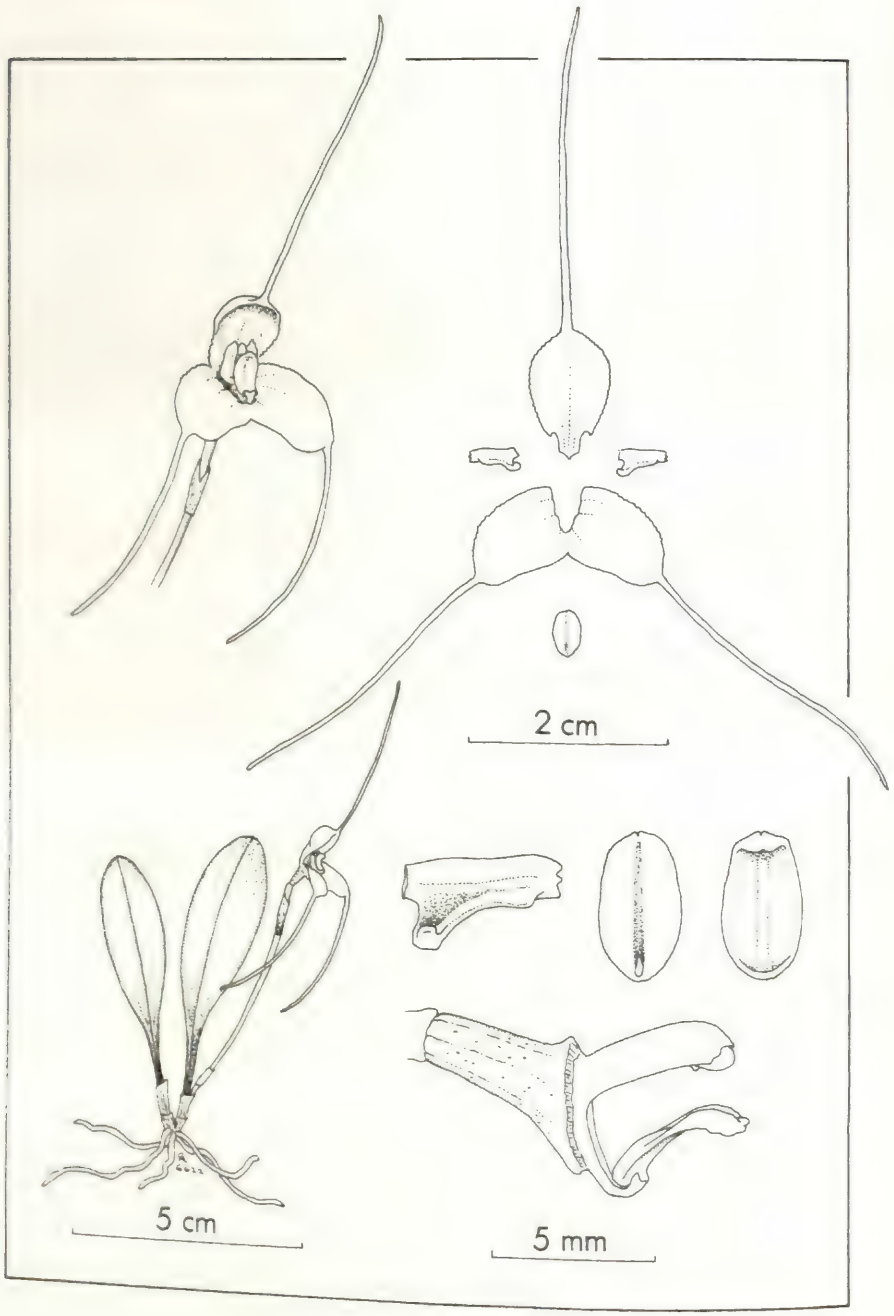


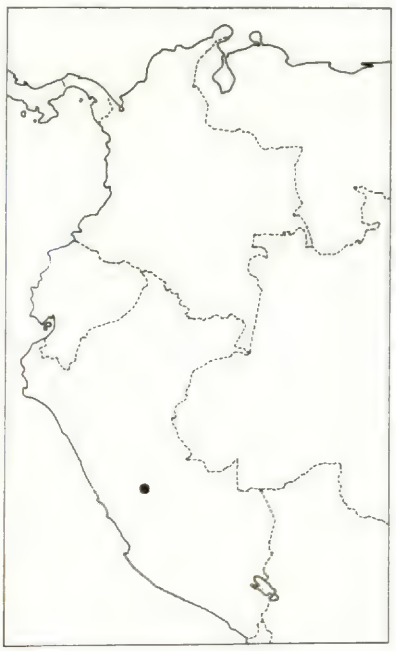
Plate 436. Masdevallia nivea

Masdevallia pandurilabia C. Schweinf., Bot. Mus. Leafl. 10: 113, 1942.

Ety.: From the Latin *pandurilabius*, "with violin-shaped lip," referring to the shape of the lip.

Plant medium in size to large, epiphytic to terrestrial, densely caespitose; roots slender. Ramicauls erect, slender, 4-7 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect to suberect, coriaceous, long-petiolate, 7-15 cm long including the petiole 2-5 cm long, the blade elliptical, acute to subacute, 2-2.8 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 18-21 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10-15 mm long; pedicel 12-25 mm long; ovary 6-7 mm long; **sepals** pale yellow, with short, red hairs within, glabrous externally, the dorsal sepal broadly ovate, 9 mm long, 9.5 mm wide, connate to the lateral sepals for 5 mm to form a shallow, sepaline cup, the free portion rounded, microscopically lacerate, abruptly contracted into a slender, erect, yellow-green tail 20-25 mm long, the lateral sepals connate 6 mm into a rectangular lamina, 9-11 mm long, 14 mm wide expanded, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** pale yellow, oblong, 5 mm long, 1.25-2 mm wide, the apex notched, acute, the labellar margin with a longitudinal callus ending in an acute, retrorse tooth above the shortly ungiculate base; **lip** bright yellow, panduriform, 4.5 mm long, 2.5 mm wide, narrowed above the middle, the apex purple, obtuse, with a thick marginal callus, the disc shallowly sulcate, the base cordate with elevated margins, hinged below; **column** white, suffused with purple, semiterete, 4 mm long, the foot stout, 2 mm long, with a slender extension.

PERU: **Huánuco**: Panao, on shrubby slopes, alt. ca. 2770 m, 10 May 1923, *J. F. Macbride 3625* (Holotype: F; Isotype: AMES); Panao, epiphytic and terrestrial, 1 Mar. 1959, *F. Woytkowski 5185* (AMES, MO); same area, terrestrial in shaded humus, alt. 2650 m, 8 Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer & M. Arias 5316* (SEL); same collection, cultivated by W. Königer in Munich, 9 Sept. 1981, C. Luer illustr. 6477; same collection, cultivated at Colomborquídeas, 10 Apr. 1988, *C. Luer 13147* (MO).



This species is endemic in the area around Panao in semi-arid, mountainous, central Peru. Great masses of plants accumulate in the deep, leafy humus under scrubby trees along quebradas. The long, slender peduncles surpass the leaves by about half their length. The pale yellow flower is studded within by short, red hairs. The apex of the pandurate lip is thickened with a dark purple callus.

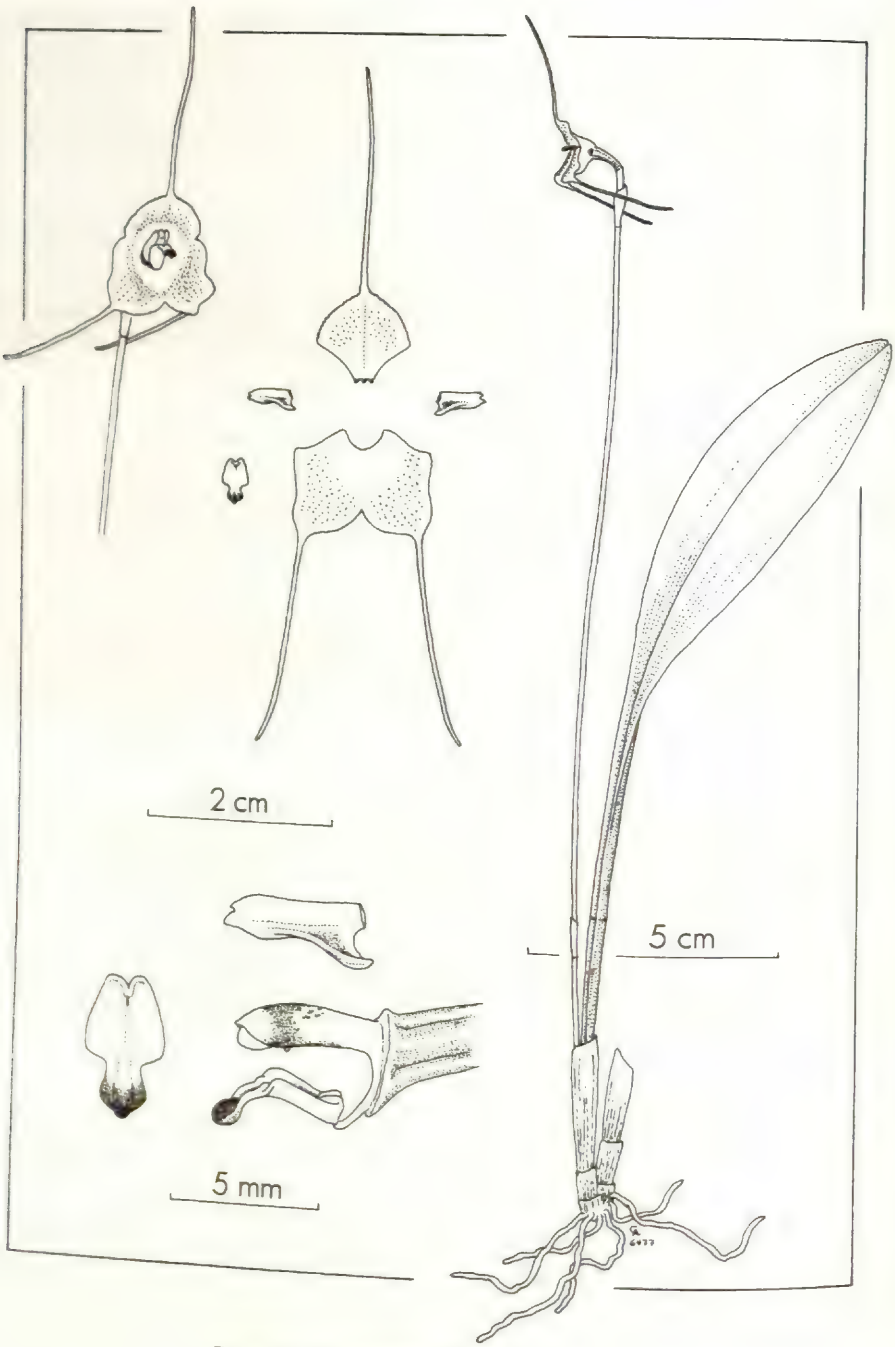


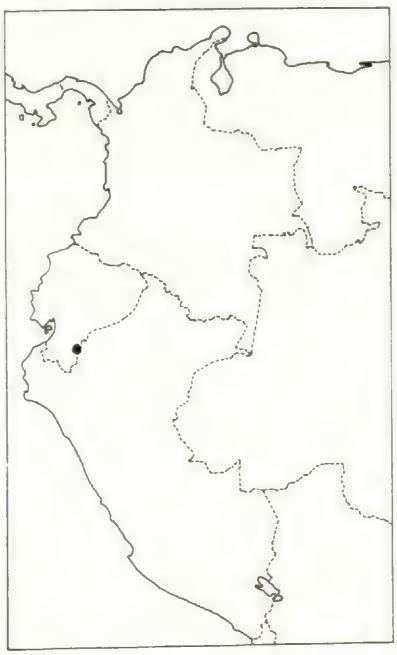
Plate 437. Masdevallia pandurilabia

Masdevallia papillosa Luer, Lindleyana 10: 232, 1995.

Ety: From the Latin *papillosus*, "with papillae," referring to the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, erect, 10-15 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 4-8 cm long including the 1.5-2.5 cm long petiole, the blade dark green, elliptical, subacute, 1.2-1.5 mm wide, the base cuneate into the slender, black petiole. **Inflorescence** a single flower borne by a slender, horizontal peduncle up to 3.5 cm long, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 7 mm long; ovary 4 mm long; **sepals** cream on outer third, deep rose-purple on lower two-thirds, prominently papillose within, glabrous externally, the blade of the dorsal sepal obovate, 12 mm long, 8.5 mm wide, connate to the lateral sepals for 3 mm to form a gaping cup, the apex rounded, abruptly contracted into an erect, slender, yellow tail 20 mm long, the lateral sepals more or less ovate, oblique, 9 mm long, 6.5 mm wide, connate 2 mm, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, suffused with rose, oblong, with a carina along the labellar margin ending in a descending, triangular, acute, winglike lobe above the base, 4 mm long, 1.5 mm wide, 3 mm wide above the base, the apex truncate, trilobulate; **lip** white, suffused with rose, speckled with purple, elliptical-oblong, 3.5 mm long, 2 mm wide, the apex dark purple, rounded, with a small, marginal callus, the disc with a parallel pair of low calli, the base subtruncate, hinged beneath; **column** white, suffused with purple, semiterete, 3.5 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in forest east of Palanda, alt. ca. 2000 m, collected by Hartman Mendoza, 1993, cultivated by J & L Orchids 294-450, Easton, CT, 10 May 1995, *C. Luer 17488* (Holotype: MO).



Plants of this species as well as others were collected in 1993 by the late Hartman Mendoza of Vilcabamba, Ecuador, shortly before his untimely death. *Masdevallia hartmanii* was the first to flower at J & L Orchids in Easton, CT, and was followed soon thereafter by *M. papillosa*.

Masdevallia papillosa is distinguished by the small, horizontally borne, widely spread flower with a short, gaping sepaline cup with the column, petals and lip standing erect in the center, but most remarkable in subsection *Caudatae* are the inner surfaces of the sepals that are covered by prominent papillae.

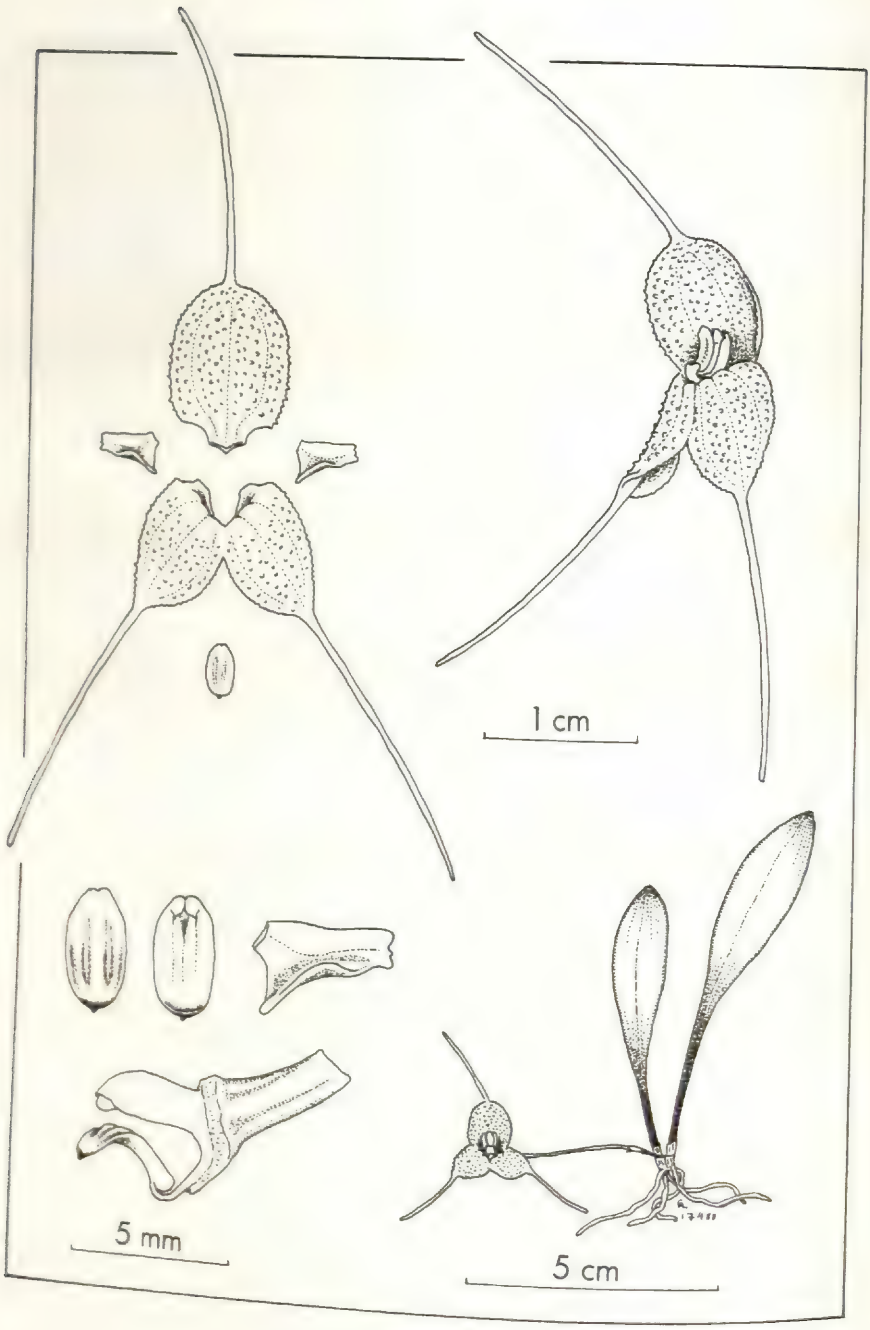


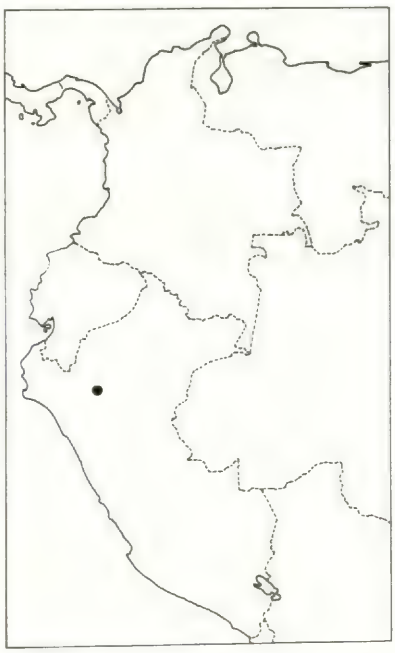
Plate 438. Masdevallia papillosa

Masdevallia pernix Königer, Die Orchidee 33: 107, 1982.

Ety: From the Latin *pernix*, "agile, active," referring to the freely motile lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, dark green, coriaceous, petiolate, 5-7.5 cm long including the petiole 1.5-2 cm long, the blade elliptical, 2.2-2.7 cm wide, the apex obtuse to rounded, the base cuneate into the petiole. **Inflorescence** a solitary, showy flower borne by an erect to horizontal, slender peduncle 4-5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 17 mm long; ovary 7-8 mm long; **sepals** yellow, dotted diffusely with red, especially along the veins, glabrous, the dorsal sepal erect, obovate, concave, 19 mm long, 15 mm wide, connate to the lateral sepals for 7 mm to form a shallow, gaping, sepaline cup, the rounded apex abruptly contracted into an erect, slender, dark red-brown tail 38 mm long, the lateral sepals elliptical-obovate, oblique, widespread, 20 mm long, each 16 mm wide, connate 10 mm to form a transverse lamina 32 mm wide, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** yellow-white, oblong, 4.75 mm long, 1.5-2 mm wide, the apex truncate, tridentate, the labellar margin with a longitudinal lamella, broadly angled above the middle, produced into a broad, obtuse process at the base; **lip** balanced horizontally and oscillating, white with purple dots above the middle, orange toward the base, oblong, 5 mm long, 3 mm wide, the apex rounded, recurved, with a purple, marginal callous, the base thickened, obtuse, hinged beneath; **column** white, dotted with purple, semiterete, 5 mm long, the apex minutely denticulate, the foot 2 mm long, with a slender, incurved extension.

PERU: **Amazonas**: Prov. of Bongará: between Pomacochas and Moyabamba, alt. 2000 m, collected by J. Meza T., 1980, flowered in cultivation in Munich, Germany, 7 Sept. 1981, *W. Königer s.n.* (Holotype: SEL; Isotypes: K, M, MO, USM, W, Herb. H. Königer), C. Luer illustr. 6520.



In a shipment of various orchid plants, collected by Jorge Meza near Pomacochas and sent to the Königers in Germany in 1980, there was a single plant which proved to be an undescribed species when it flowered the following year. No other collection is known. Attempts at self-fertilization have been unsuccessful.

Vegetatively, it is characterized by a comparatively large, dark green, elliptical leaf with a long, blackish petiole, and the flower is one of the largest in the subsection. The broadly expanded, yellow sepals are minutely spotted with red. The process at the base of the petals is merely triangular. The loosely hinged, oblong lip, set in motion by the slightest disturbance, is only slightly convex medially, and not concave beneath.

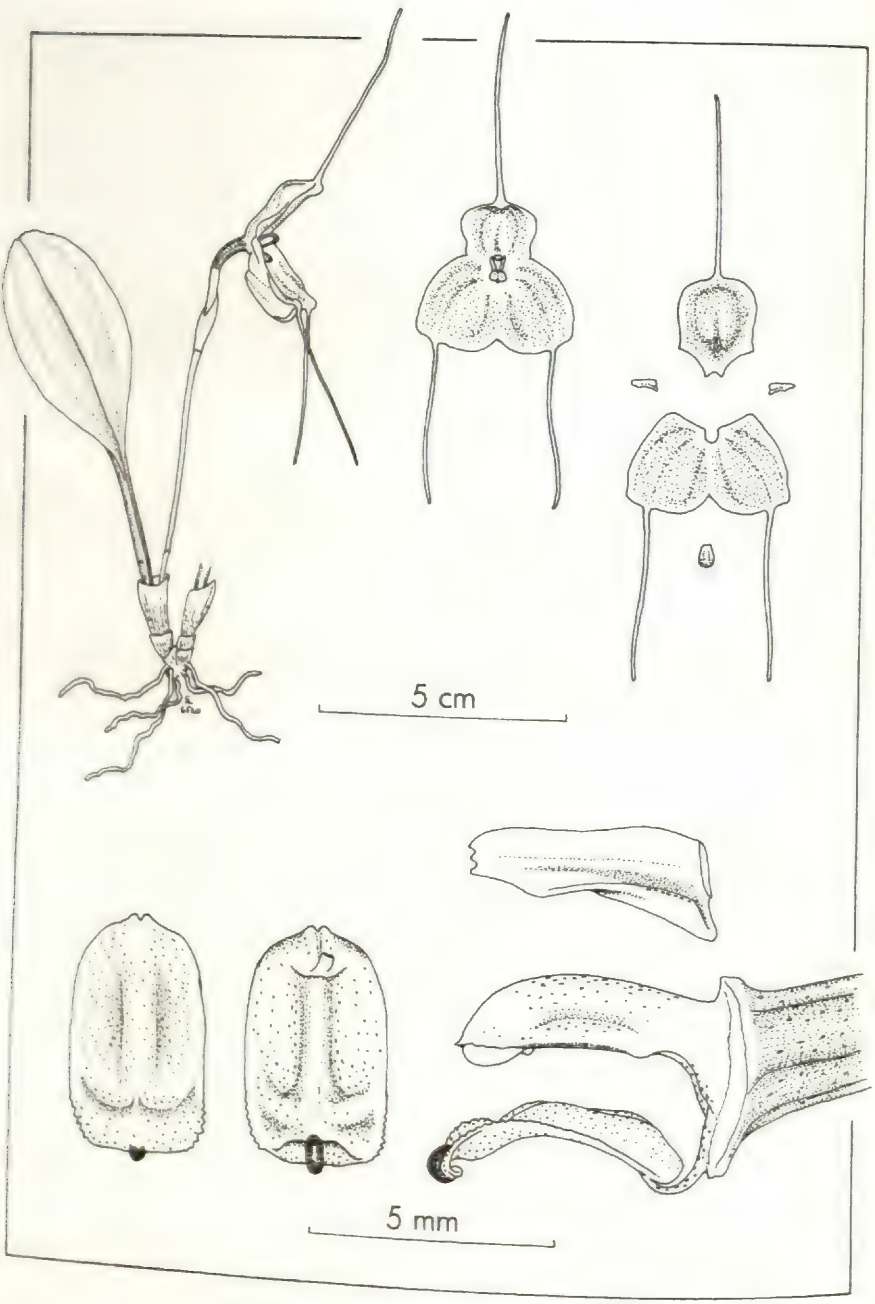


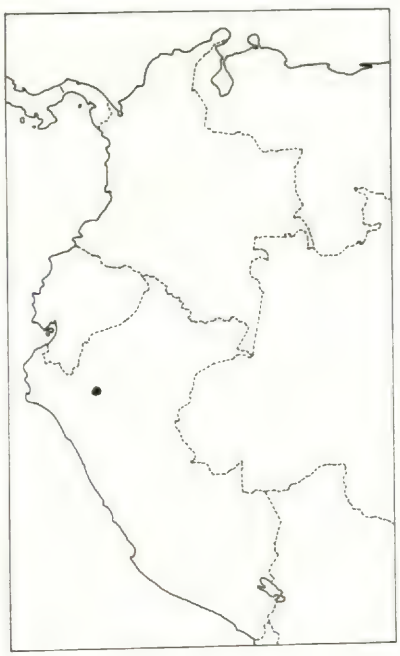
Plate 439. Masdevallia pernix

Masdevallia phlogina Luer, Lindleyana 8: 47, 1993.

Ety.: From the Greek *phloginos*, "fiery," referring to the color of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 2-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, dark green, 5-9 cm long including a blackish petiole 1.5-2.5 cm long, the blade elliptical, subacute to obtuse, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 7-8 cm long, with a bract near the base, from near the base of a ramicaul; floral bract tubular, 15 mm long; pedicel 20 mm long; ovary 8 mm long; **sepals** orange, suffused and minutely dotted with red basally and along the midveins, lightly carinate, glabrous externally, microscopically papillose within, the dorsal sepal oblong-obovate, shallowly concave, 20 mm long, 13 mm wide, connate to the lateral sepals for 4-5 mm to form a gaping flower, the apex rounded, abruptly contracted into a slender, orange, lightly reflexed tail 5-6 cm long, the lateral sepals expanded, oblong-ovate, obtuse, oblique, 19 mm long, 12 mm wide, connate 5 mm, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** orange, oblong, 4.5 mm long, 2 mm wide across the middle, 3.5 mm wide across the basal lobes, the apex subtruncate, retuse, obscurely lobed, the labellar margin with a longitudinal wing ending in a descending, oblong, obtuse process above the base, the upper margin with a similar but smaller process; **lip** orange, flecked with red, especially at the apex, elliptical-oblong, lightly arcuate, 5.5 mm long, 2.5 mm wide, the apex obtuse, decurved, with a small, midline callus, the disc superficially channeled, thickened toward the base, the base subcordate, hinged beneath; **column** orange, semiterete, 5 mm long, the foot thick with a short, slender, incurved extension.

PERU: **Amazonas**: Bongará, epiphytic in between Pomacochas and Río Rioja, alt. 2000 m, July 1991, cultivated at Hasselt, Belgium, Nov. 1991, *P. Cloes 852020* (Holotype: MO), C. Luer illustr. 16234.



This species, apparently uncommon and restricted to an area of northern Peru, is most similar to *M. mandarina*, both species bearing colorful, orange flowers that are streaked in red. No "eye-spot" is present at the bases of the lateral sepals that are microscopically papillose within. Most distinctive, however, are the petals that bear an oblong lobe above the base on both margins. The lip is more or less oblong with thin microscopically erose margins and thickened toward the base where it is simply hinged beneath to the extension of the column-foot.

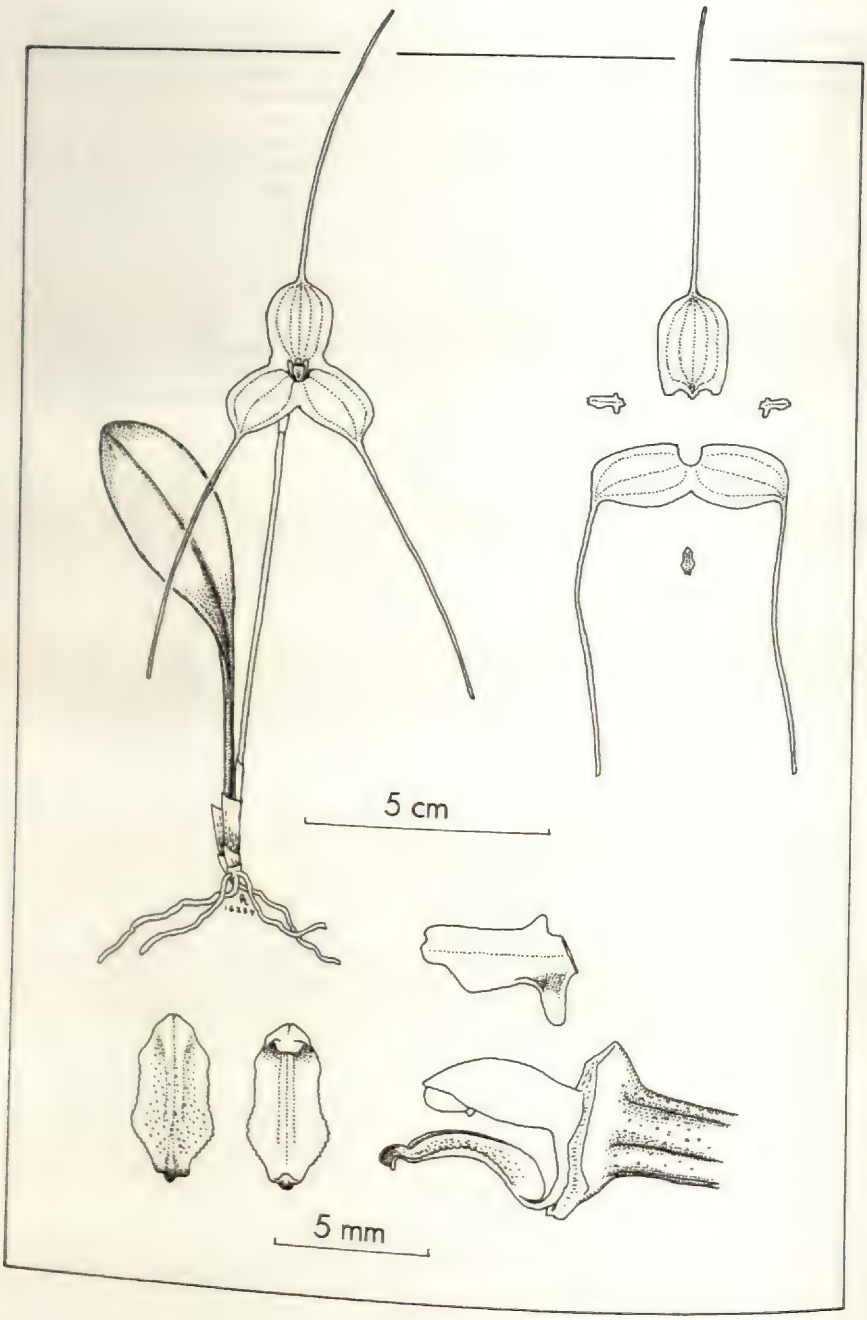


Plate 440. Masdevallia phlogina

Masdevallia pileata Luer & Würstle, Orchideeën 48: 50, 1986.

Ety.: From the Latin *pileatus*, "with a cap," referring to the appearance of the dorsal sepal.

Plant medium in size, presumably epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-11 cm long including the indistinct petiole 2-3 cm long, the blade narrowly elliptical, acute, 0.9-1.3 cm wide, gradually narrowed below into the slender petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 9-10 cm long. with a bract above the base, from low on the ramicaul; floral bract tubular, 12 mm long; pedicel 15 mm long; ovary 7 mm long; **sepals** white, glabrous externally, shortly glandular pubescent within, the dorsal sepal suffused with red within centrally, obovate, concave, directed forward, 20 mm long, 10 mm wide expanded, connate basally to the lateral sepals for 2 mm to create a gaping sepaline cup, the apex obtuse, contracted into a slender, white, upcurved tail 22 mm long, the lateral sepals suffused with red within basally, narrowly ovate, 20 mm long, 6.5 mm wide, connate 2 mm, the apices acute, tapered into slender, white tails 22 mm long; **petals** erect, yellow, oblong, 5.75 mm long, 1.5-2 mm wide, the apex subacute, lightly twisted, the labellar margin callous, ending in an obtuse angle at the base; **lip** white, dotted with purple, yellow toward the base, ovate, 5 mm long, 2.25 mm wide, the apex obtuse with a purple, midline callus, the base obtuse, hinged beneath; **column** red-purple, semiterete, 4 mm long, the foot 3 mm long including the 1 mm long, incurved extension.

COLOMBIA: without locality, collected in the Eastern Cordillera by Herr Hubein, cultivated by B. Würstle 1318 at Spielberg, cultivated by W. Königer, 19 August 1982, *C. Luer 8132* (Holotype SEL); same collection, cultivated at Colomborquídeas, 25 Apr. 1988, *C. Luer 13315* (MO).

This species, apparently uncommon and restricted to the Eastern Cordillera of Colombia, is similar to *M. schizantha*, but it is distinguished from the latter by much narrower leaves; the concave, cucullate blade of the dorsal sepal that is similar to that of the much smaller flower of *M. ludibunda*, and much shorter tails. The petals are oblong with an obtuse basal angle, and the lip is ovate.

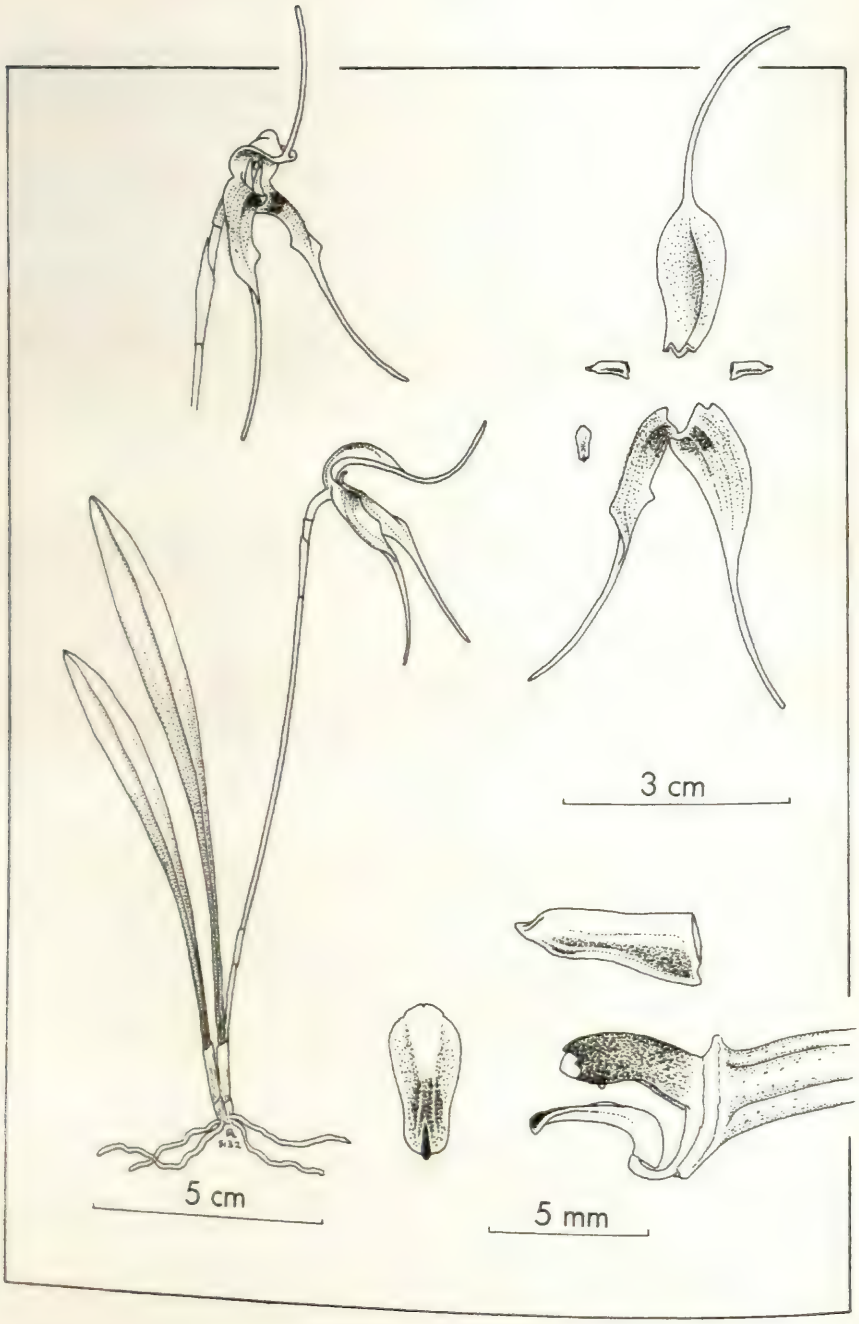


Plate 441. Masdevallia pileata

Masdevallia polychroma Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 72: 113, 1998.

Ety.: From the Greek *polychroma*, "of many colors," referring to the colorful, little flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 8-11 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-6.5 cm long including the petiole 1-2 cm long, the blade elliptical, subacute, 1.3-1.6 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 10 mm long; ovary 5 mm long; **sepals** glabrous externally, the dorsal sepal light golden yellow, minutely red-cellular-papillose within, obovate, 14 mm long, 10 mm wide, connate to the lateral sepals for 6 mm to form a shallow, gaping, sepaline cup, the apex rounded, abruptly contracted into an erect, slender, yellow-green tail 3 cm long, the lateral sepals light rose, suffused with rose along the veins, broadly ovate, oblique, 13 mm long, 12 mm wide, connate 5 mm, the apices oblique, obtuse, contracted into slender, yellow-green tails similar to that of the dorsal sepal; **petals** white, cartilaginous, more or less oblong, 5 mm long, 1.75-2.75 mm wide, the apex acute, the labellar margin with a thick, longitudinal winglike carina, produced into a large, thick, retrorse process above the base; **lip** rose, dotted with purple, elliptical-oblong, 5 mm long, 2.75 mm wide, the apex subtruncate, with a small, marginal callus, the disc with an indistinct pair of longitudinal calli, the base rounded, hinged beneath; **column** white, suffused with purple along the margins, semiterete, 4 mm long, the foot 3 mm long including a long, incurved extension.

ECUADOR: Without collection data, obtained from José Portilla collector, cultivated by J & L Orchids 498-559, 16 Apr. 1998, *C. Luer 18791* (Holotype: MO).

This species with multicolored flowers of subsection *Caudatae* is another allied to *M. xanthina* and its relatives. It is characterized by the small habit, and a flower with a shallow, gaping, long-tailed, sepaline cup. It is distinguished from all other members by the golden yellow dorsal sepal studded with red cells within; light rose lateral sepals with darker rose veins; acute petals with a large, thick, retrorse tooth; and a rose, oblong lip with a minute marginal callus at the broad apex.

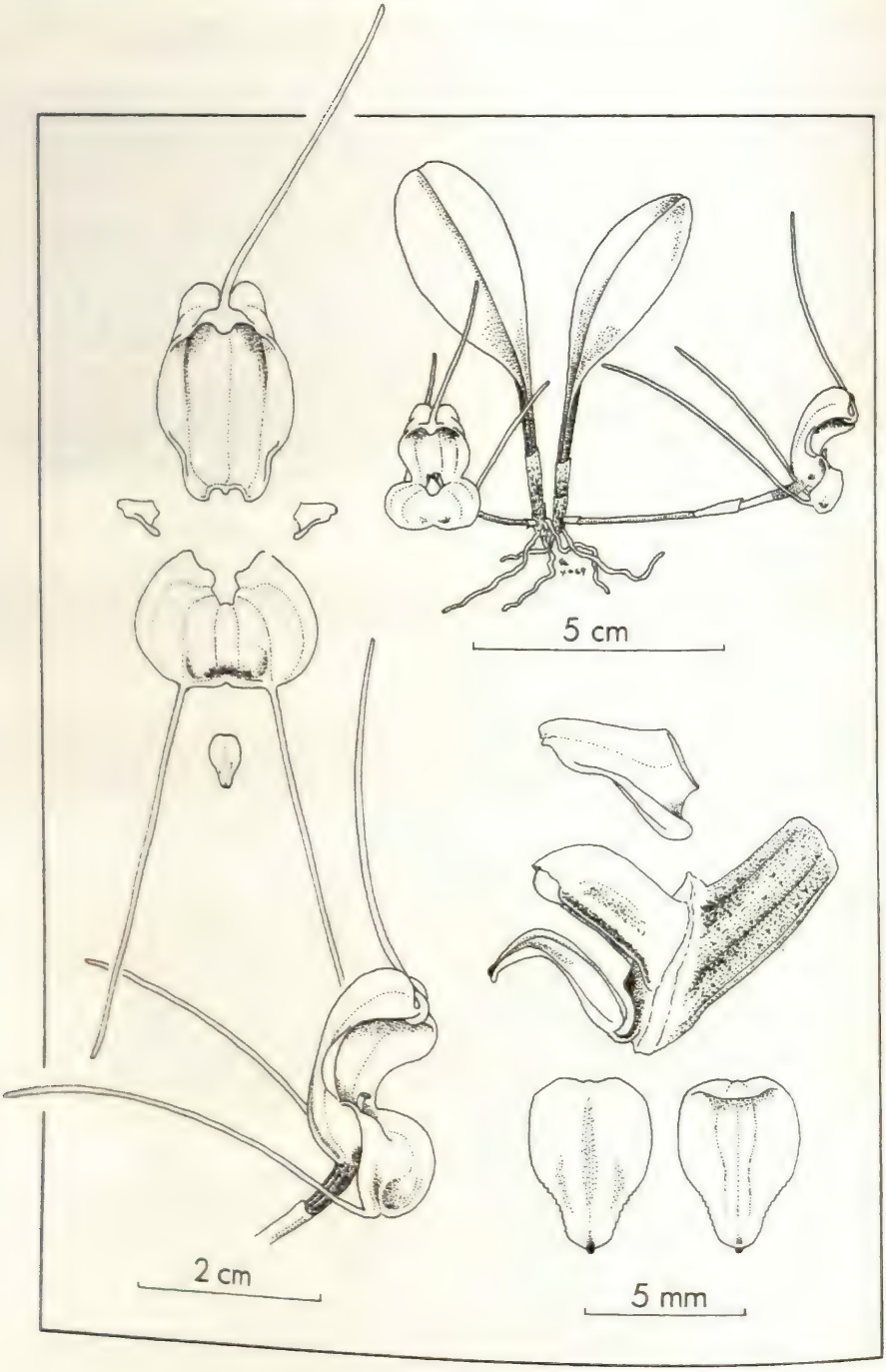


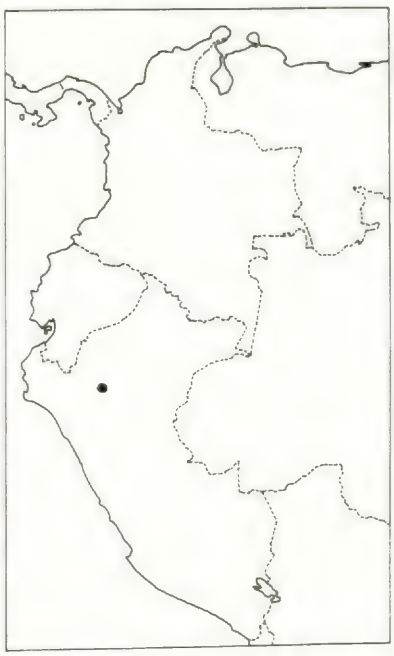
Plate 443. Masdevallia prodigiosa

Masdevallia prodigiosa Königer, Die Orchidee 30: 195, 1979; emend. 36: 87, 1985.

Ety.: From the Latin *prodigiosus*, "strange, wonderful," in allusion to qualities of the flower.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 8-18 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-7 cm long including the petiole 1-2 cm long, the blade elliptical-obovate, obtuse to rounded at the apex, 1.2-2.5 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary, showy flower borne by a more or less horizontal, slender peduncle 2.5-5.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-12 mm long; pedicel 12-17 mm long; ovary dark brown, 5-6 mm long; **sepals** yellow-orange, glabrous, the dorsal sepal ovoid, deeply concave, cucullate-bisaccate above the middle, 24 mm long, 15 mm wide unexpanded, with the apical margin transverse, abruptly produced into a slender, reflexed, orange tail 3.5-5.5 cm long, connate to the lateral sepals for 5 mm to form a gaping, sepaline cup, the lateral sepals connate 10 mm into a transversely suborbicular, reflexed lamina, 14 mm long, 20 mm wide, the transverse apices contracted into slender, reflexed, orange tails 3.5-6 cm long; **petals** yellow, subovate-triangular, 5 mm long, 1.75 mm wide above the middle, 3.5 mm wide across the base, the apex oblique, truncate, microscopically irregular, the labellar margin with a longitudinal callus terminating in a thick, broad, obtuse process above the base; **lip** yellow, thin, erect, ovate, 5.5 mm long, 3.75 mm wide, slightly narrowed above the middle with minutely erose margins, the apex obtuse or narrowly rounded, with a small, dark, midline callus, the disc featureless, the base broadly subtruncate to rounded, narrowly hinged beneath; **column** light rose, flecked with purple and with purple margins, semiterete, longitudinally winged, 5 mm long, the foot thick, 1.5 mm long, with a short, incurved extension.

PERU: **Amazonas**: Prov. of Bongará, between Chachapoyas and Pomacochas, alt. 2000 m, 2 Aug. 1978, *W. Königer, H. Königer, B. Würstle, J. Meza et al. K-3b* (Holotype: SEL; Isotypes: K, M, USM, W, Herb. H. Königer), same collection, cultivated by W. Königer in Munich, Germany, Mar. 1979, *C. Luer 4069* (SEL); between Pomacochas and Moyabamba, alt. 2100 m, Aug. 1979, *W. Königer, H. Königer et al. K-29b* (SEL, Herb. H. Königer).



This spectacular species is apparently endemic in forests of Amazonian Peru where it was reportedly not rare before clearing of the forests increased in intensity. The brilliant, pure yellow to deep orange flowers are borne on horizontal peduncles, but the flowers face outwards, nevertheless. The dorsal sepal is deeply cucullate above the erect lip. The lateral sepals are connate into a transverse, convex lamina below. All three slender tails are acutely reflexed.

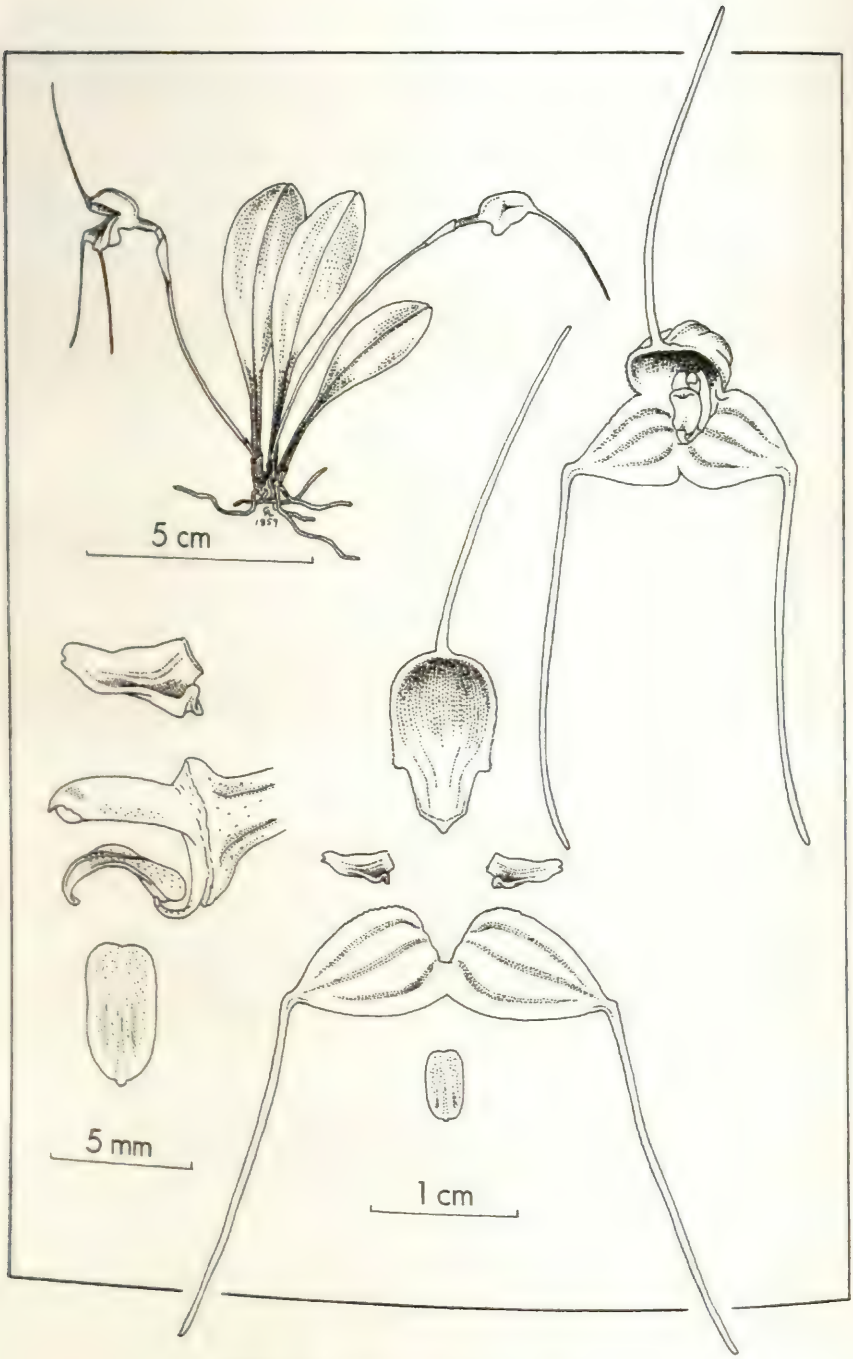


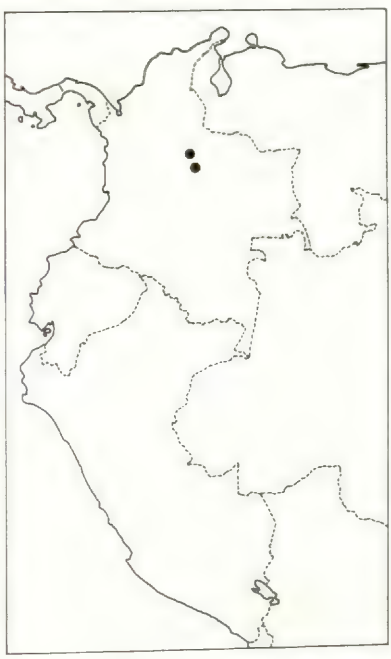
Plate 444. Masdevallia purpurella

Masdevallia purpurella Luer & Escobar, Orquideología 15: 136, 1982.

Ety.: From the Latin *purpurellus*, a diminutive of "purple," referring to the small, purple flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 5-10 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-6 cm long including the petiole 1.5-2 cm long, the blade elliptical, obtuse, 1.7-1.7 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by a slender, suberect peduncle 4-4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 9-10 mm long; ovary green, 4 mm long; **sepals** rose, glabrous, with the margins microscopically erose, the dorsal sepal bright rose, yellowish toward the base, obovate, concave, 12 mm long, 8 mm wide expanded, connate to the lateral sepals for 4 mm to form a shallow, sepaline cup, the rounded apex abruptly contracted into an erect, slender, yellow-green tail ca. 2.5 cm long, the lateral sepals rose with purple suffusion into 3 stripes along the veins, ovate, oblique, 10 mm long, 7 mm wide, connate 3 mm, forming a mentum with the column-foot, the apices acute, contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.25-2.5 mm wide, the apex obtuse, minutely lobulate, the labellar margin with a thick, longitudinal carina, produced into a thick, incurved process above the base; **lip** erect, white, dotted with pink, oblong-elliptical, 4.5 mm long, 2.25 mm wide, the apex round with a small marginal callus, the base rounded, hinged beneath; **column** white, suffused with pink, semiterete, 4.5 mm long, the foot 3 mm long with an incurved extension.

COLOMBIA: **Santander**: Charalá, near Virolín, alt. 2200-2600 m, collected by E. Guevara, 1974, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 1469* (Holotype: JAUM; Isotype: SEL); same collection, cultivated by M. & O. Robledo at La Ceja, 28 Sept. 1977, *C. Luer 1859* (SEL). **Boyacá**: Charalá, between Duitama and Virolín, alt. 2300 m, 2 June 1982, *C. Luer, R. Escobar & D. Portillo 8047* (AMES, MO, SEL); same collection, cultivated at Colomborquídeas, 22 Mar. 1989, *C. Luer 14360* (MO).



This prettily colored little species is known from only one locality in the Eastern Cordillera of Colombia where it is locally abundant. It is similar to *M. caudata* and its relatives, but distinguished from them by the much smaller size and non-striped, purple flowers. It is most similar to *M. nivea*, but distinguished from it by the colorful, more deeply connate sepals with flowers borne by shorter peduncles.

Masdevallia purpurella is characterized by the small habit with small, purple flowers borne among the leaves by short peduncles. The dorsal sepal is deeply concave and rounded while the lateral sepals are ovate and acute. Each petal bears a thick, obtuse, retrorse process at the base. The lip is simply oblong.

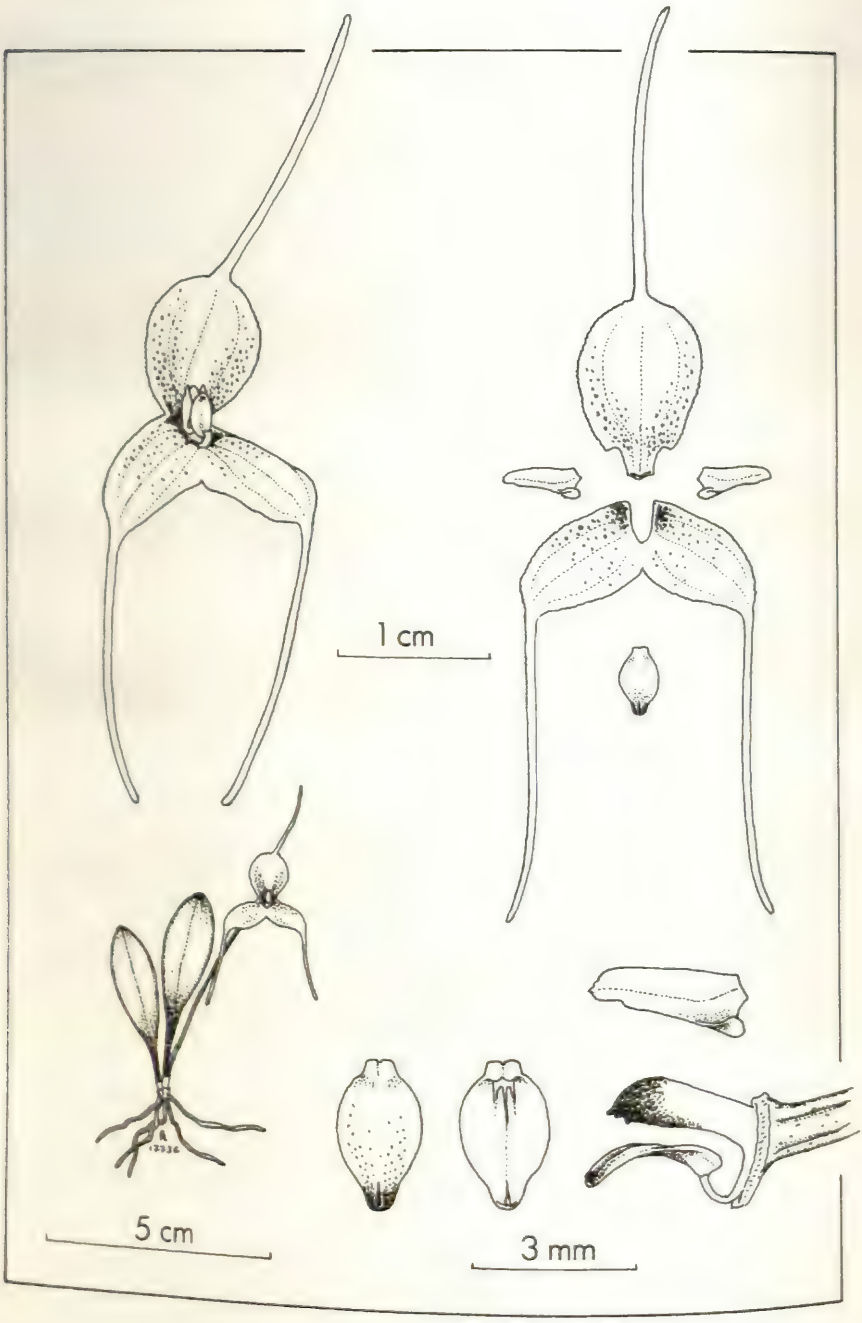


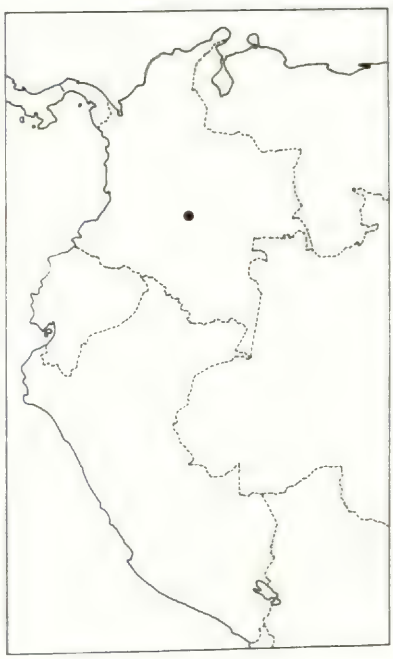
Plate 445. Masdevallia renzii

Masdevallia renzii Luer, Lindleyana 10: 232, 1995.

Ety.: Named in honor of the late Dr. Jany Renz of Basel, Switzerland, who collected this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 8-9 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 27-32 mm long including a black petiole ca. 5 mm long, the blade elliptical, obtuse, 9-11 mm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 6 mm long; ovary pitted, 3-4 mm long; **sepals** whitish, diffusely speckled or flecked with purple, glabrous, the margins microscopically erose, the dorsal sepal obovate-suborbicular, slightly concave, 12 mm long, 8 mm wide, connate to the lateral sepals for 2 mm to form a shallow, gaping, sepaline cup, the rounded apex contracted into an erect, light yellow-green tail 2 cm long, the lateral sepals blackish at the base, oblong, oblique, 9 mm long, 6 mm wide, connate 2 mm, forming a mentum with the column-foot, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, suboblong, 5 mm long, 1-2 mm wide, the apex obtusely lobulate-truncate, the labellar margin with a longitudinal, winglike carina, produced into a thin, rounded, incurved process above the shortly unguiculate base; **lip** white, flecked with purple, elliptical, contracted below the apex and contracted above the base, 4.5 mm long, 2.6 mm wide, the apex suffused with blackish purple, narrowly rounded, with a small, black callus at the margin, the base subtruncate, hinged beneath; **column** suffused and mottled with blackish purple toward the apex, semiterete, 4.5 mm long, the foot 2.5 mm long with a long, incurved extension.

COLOMBIA: **Cundinamarca**: between Une and Gutierrez, Río Sanane Valley, alt. 2400 m, 8 July 1955, *J. Renz 8461* (Holotype: BAS), C. Luer illustr. 17736.



This species is one of the smallest of subsection *Caudatae*, the other small white ones being *M. nivea*, also from the Eastern Cordillera, and *M. bottae* from southern Ecuador. *Masdevallia renzii* was discovered Dr. Jany Renz in the mountains south of Bogotá, where it is apparently endemic.

Masdevallia renzii is distinguished from the great number of variable taxa similar to *M. xanthina* by its small stature, small flowers diffusely speckled with purple, short sepaline tails about two centimeters long, and an elliptical lip that is narrowed both just below the black-tipped apex and just above the base. It is held exposed and erect in the flower by a long, incurved extension of the column-foot.

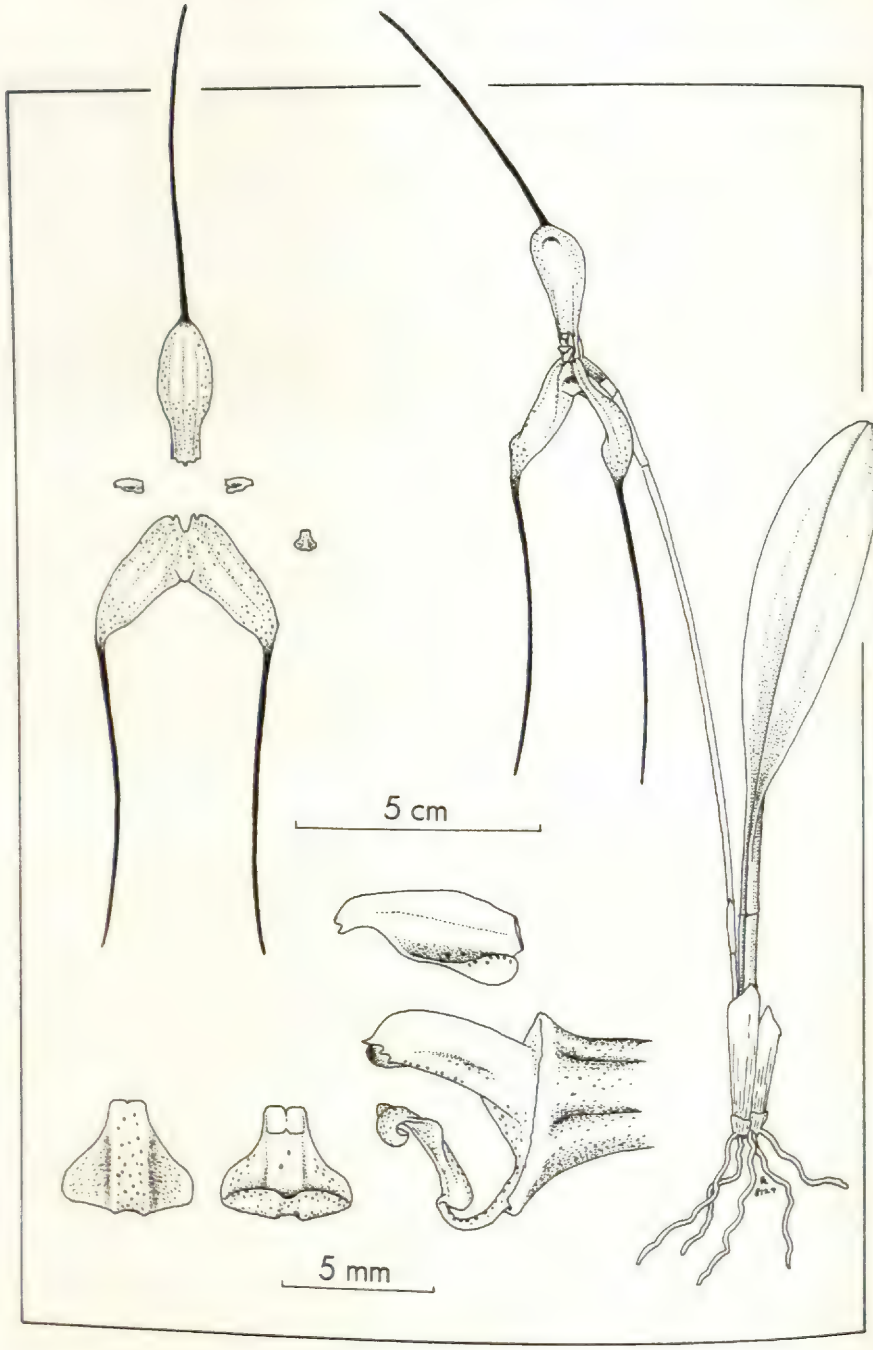


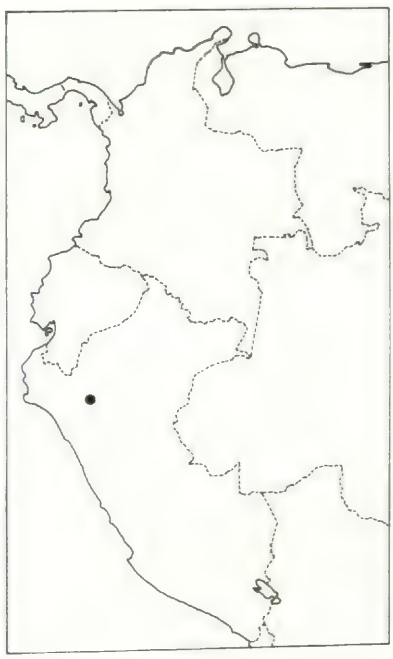
Plate 446. Masdevallia replicata

Masdevallia replicata Königer, Die Orchidee 36: 82, 1985.

Ety.: From the Latin *replicatus*, "folded back," referring to the reflexed apex of the lip.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-4.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-11 cm long including the petiole 2-3 cm long, the blade elliptical, obtuse, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 12-15 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 15-18 mm long; pedicel 20 mm long; ovary green, 7-8 mm long; **sepals** pale yellow, flecked and dotted with purple, lightly verrucose within, the blade of the dorsal sepal elliptical-obovate, with the sides reflexed below the middle, 30 mm long, 13 mm wide, connate to the lateral sepals for 3 mm to form a widely exposed, sepaline cup, the apex obtuse, contracted into a slender, erect, purple tail 6-7 cm long, the lateral sepals suffused with orange at the base, ovate, oblique, 28 mm long, 12 mm wide, connate 9 mm to form a convex junction between the two lateral sepals, the apices acute, contracted into descending tails similar to that of the dorsal sepal; **petals** white with a few purple markings, ovate, 6.5 mm long, 2.5 mm wide above the base, the apex oblique, obtuse, bilobulate, the labellar margin with a broad, longitudinal callus ending in a thick, incurved process above the base; **lip** yellow, flecked with purple-brown, transversely obovate, 4 mm long, 4.5 mm wide, the apex broadly truncate, revolute, the disc longitudinally thickened with sides of the lip thin, broadly rounded, the base subcordate-truncate, hinged below; **column** greenish white, dotted with purple, semiterete, 5 mm long, the foot 4 mm long with the slender, incurved extension.

PERU: **Amazonas**: Luya, near Pisuquia, alt. 2500 m, 1982, collected by *J. Meza T. s.n.* (Holotype: M); same collection, cultivated by W. Königer in Munich, Germany, 29 Aug. 1982, *C. Luer 8124* (MO, SEL).



This species is apparently endemic in the forests of northern Peru where it is known only from the original collection. With the large, widely expanded, long-tailed flower, it is superficially similar to *M. wurdackii*, also found in northern Peru. The sepals of *M. replicata* are yellowish white and flecked with red, while the lip stands erect in the center of the flower. The lip is red-flecked and transversely obovate with the broad apex revolute.

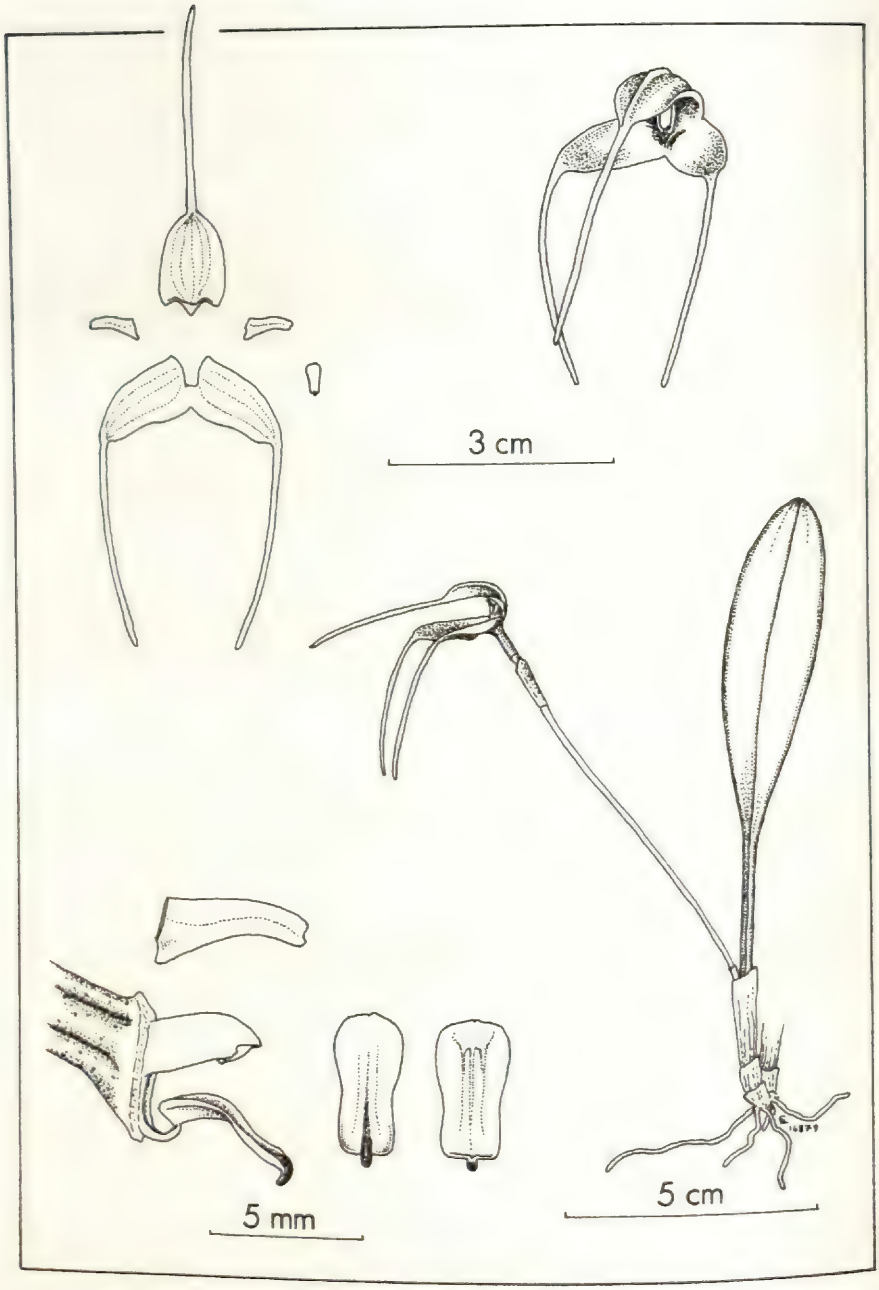


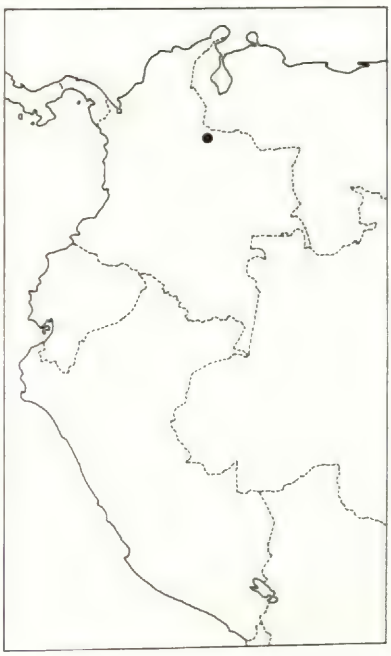
Plate 447. Masdevallia rhinophora

Masdevallia rhinophora Luer & Escobar, Lindleyana 10: 126, 1995.

Ety.: From the Greek *rhinophorus*, "bearing a nose," in allusion to the apical callus of the lip.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 7-10 cm long including the petiole 2-3.5 cm long, the blade elliptical-obovate, obtuse to rounded at the apex, 1.8-2.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower produced by a slender, suberect peduncle 6-7.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 12 mm long; pedicel 15 mm long; ovary 6 mm long; **sepals** glabrous, white, suffused with rose, the dorsal sepal oblong, carinate, concave, arcuate-cucullate, 13 mm long, 8 mm wide expanded, 5-veined, connate to the lateral sepals for 2 mm to form a gaping sepaline cup, the apex rounded, contracted into a stout, yellowish, forwardly directed tail 3 cm long, the lateral sepals oblong-ovate, oblique, 15 mm long, 8 mm wide, connate basally for 2 mm, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, oblique, 4.5 mm long, 1-1.5 mm wide, the truncate apex shallowly lobulate, the labellar margin with a longitudinal callus ending in a thickened, obtuse, basal angle; **lip** white, oblong, 4.5 mm long, 2 mm wide, the apex brown, truncate, shallowly concave, with a protruding, central, marginal callus, the disc shallowly sulcate between a low pair of parallel calli, the base rounded, hinged beneath; **column** white, stout, semiterete, 4 mm long, the foot 2 mm long, with an incurved extension.

COLOMBIA: **Norte de Santander**: Alto de Santa Inéz, alt. 2100 m, collected May 1982 by R. Escobar, D. Portillo, J. and C. Luer, cultivated at Colomborquídeas, 16 May 1993, *C. Luer 16879* (Holotype: MO). Without locality, cultivated at Colomborquídeas, 26 Apr. 1997, *R. Escobar 8334* (MO).



This species, known from a single collection, is apparently endemic in the Eastern Cordillera of Colombia. It has been cultivated at Colomborquídeas with the identification of *M. ludibunda*, but with some reservations because it differed in several respects from other plants that were considered to be *M. ludibunda*.

This species does indeed most closely resemble *M. ludibunda*, but it is distinguished from the latter by the larger flowers with a broader, five-veined dorsal sepal; proportionately shorter peduncles that bear the flowers not higher than the leaves; and a long, apical callus of the lip that protrudes beyond the non-recurved margin.

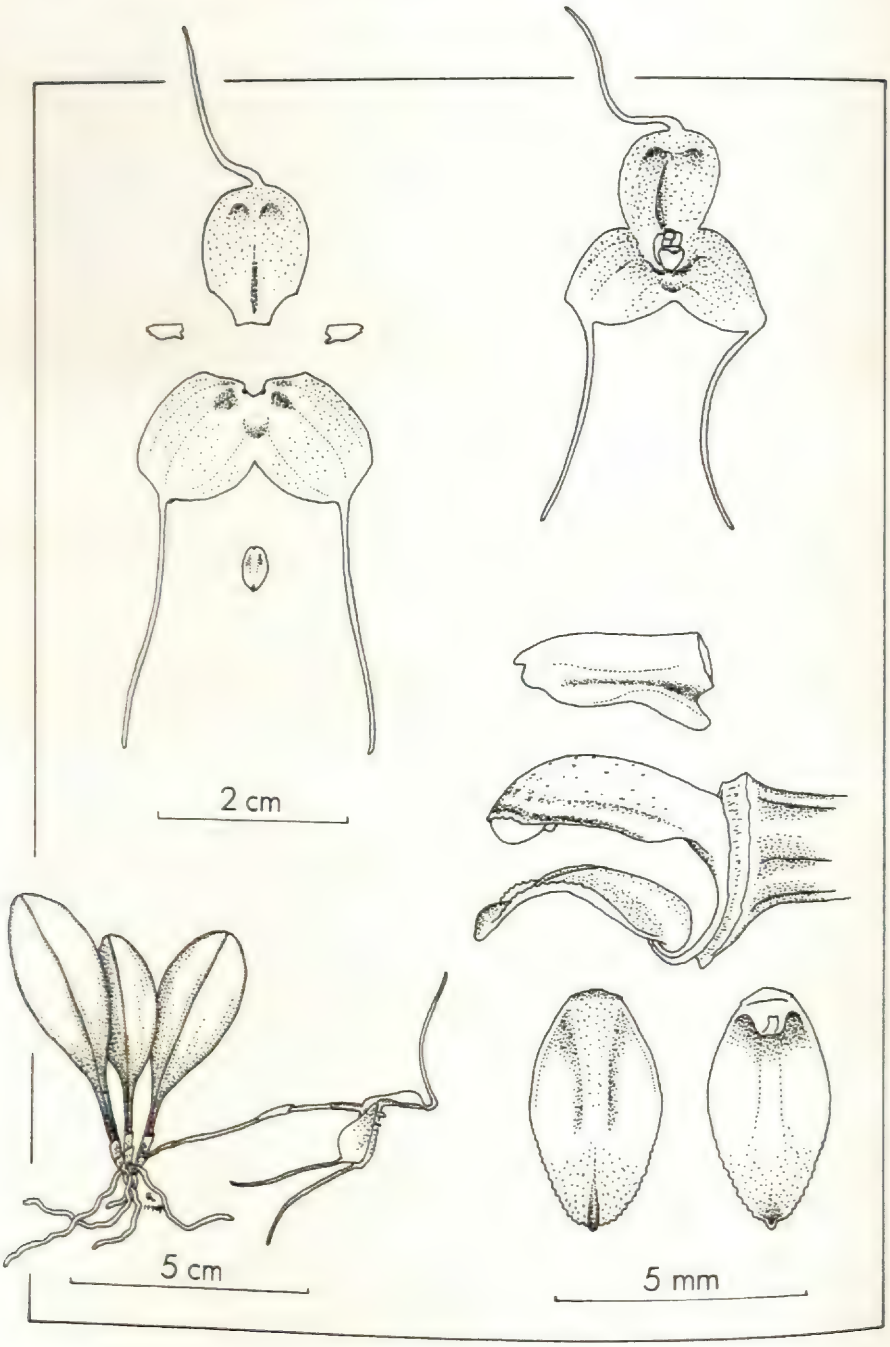


Plate 449. Masdevallia rufescens

Masdevallia rufescens Königer, Die Orchidee 37: 110, 1986.

Ety.: From the Latin *rufescens*, "becoming reddish," referring to the color of the sepals.

Syn.: *Masdevallia neglecta* Königer, Die Orchidee 42: 8, 1991.

Ety.: From the Latin *neglectus*, "neglected," referring to a supposed oversight in recognition.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicaul blackish, slender, erect, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, dark green, petiolate, 3-6 cm long including the petiole 1-2 cm long, the blade elliptical, subacute to obtuse, 1-2 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary flower borne by an erect to suberect, slender peduncle 2.5-4 cm long, with a bract near the base, from low on the ramicaul; floral bract 6-10 mm long; pedicel 11-14 mm long; ovary 5-6 mm long; **sepals** light yellow or light green, suffused with red along the veins and at the base, carinate, cellular-glandular within, the dorsal sepal suborbicular, concave above the middle, 13-14 mm long, 11-12 mm wide, connate to the lateral sepals for 3-4 mm to form a shallow, gaping cup, the apex rounded, abruptly contracted into a slender, reflexed, yellowish tail 2.5 cm long, the lateral sepals elliptical, 14 mm long, 11-12 mm wide, connate 6-7 mm, the rounded apices contracted into tails similar to that of the dorsal sepal; **petals** yellow-white, more or less oblong, 4 mm long, 1.5 mm wide, the truncate apex notched, sub-bilobate, the labellar margin with a longitudinal callus ending in a broad obtuse, retrorse process at the base; **lip** white, dotted with brown or purple, elliptical, 4-5 mm long, 2.75-3 mm wide, the thin margins minutely serrulate above the middle, the apex rounded with a midline callus, the disc convex below the middle, the base loosely and narrowly hinged beneath to the column-foot; **column** yellow-white with purple dots and margin, semiterete, 3.5-4 mm long, the foot 1 mm long with a slender, incurved extension.

PERU: **Amazonas**: without locality, collected by J. Meza, 1984, cultivated in Munich, 2 Dec. 1985, *W. Königer 28* (Holotype: M); same collection, cultivated by W. Königer in Munich, Germany, 23 Sept. 1985, *C. Luer 11409* (MO); without locality, collected by J. Meza, 1984, cultivated in Munich, 2 Dec. 1990, *W. Königer WK-15* (holotype of *M. neglecta*: M, isotypes K, USM, W, Herb. H. Königer); same collection, cultivated by W. Königer in Munich, Germany, 25 Oct. 1985, *C. Luer 11448* (MO).
ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest above Numbala, collected by B. Malo, cultivated at Tarqui, 25 May 1988, *C. Luer 13687* (MO); between Loja and Zamora, collected by A. Andreetta, cultivated at Paute, Aug. 1990, *A. Hirtz 5029* (MO); above Zumba, alt. 1800 m, *J. Portilla 1118* (MO), C. Luer illustr. 19369.

Only two plants of this species were collected at the same time in the same locality by Jorge Meza in northern Peru and cultivated by W. Königer in Germany. One was described in 1986 as *M. rufescens*, and the second with more deeply connate lateral sepals was described in 1991 as *M. neglecta*. Although apparently rare in northern Peru, this somewhat variable species occurs rather frequently in cloud forests of southern Ecuador. It is distinguished by light yellow or green sepals suffused with rusty red. The sepals are obtuse with the dorsal concave. The process at the base of the petals thick and variable. The lip is elliptical with thin lateral margins and a distinct apical callus.

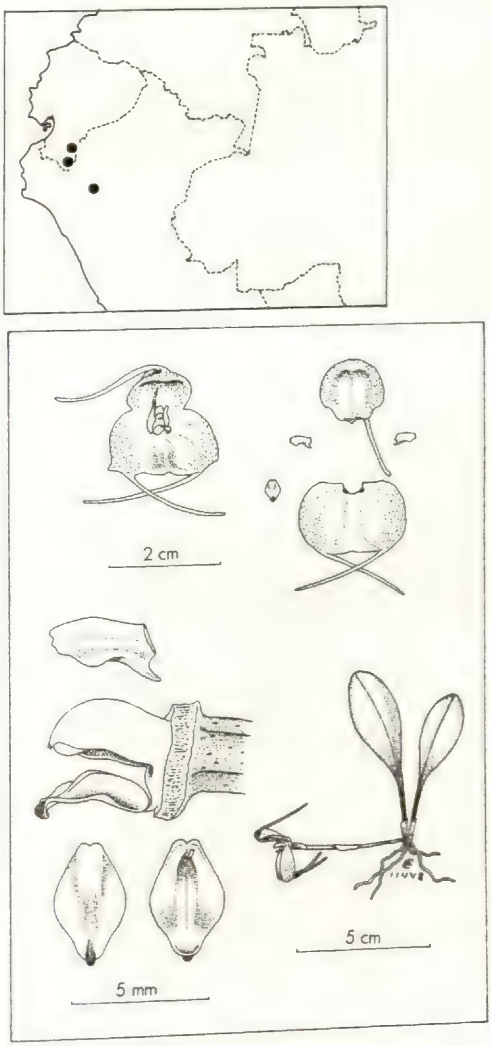


Plate 448. Masdevallia rufescens

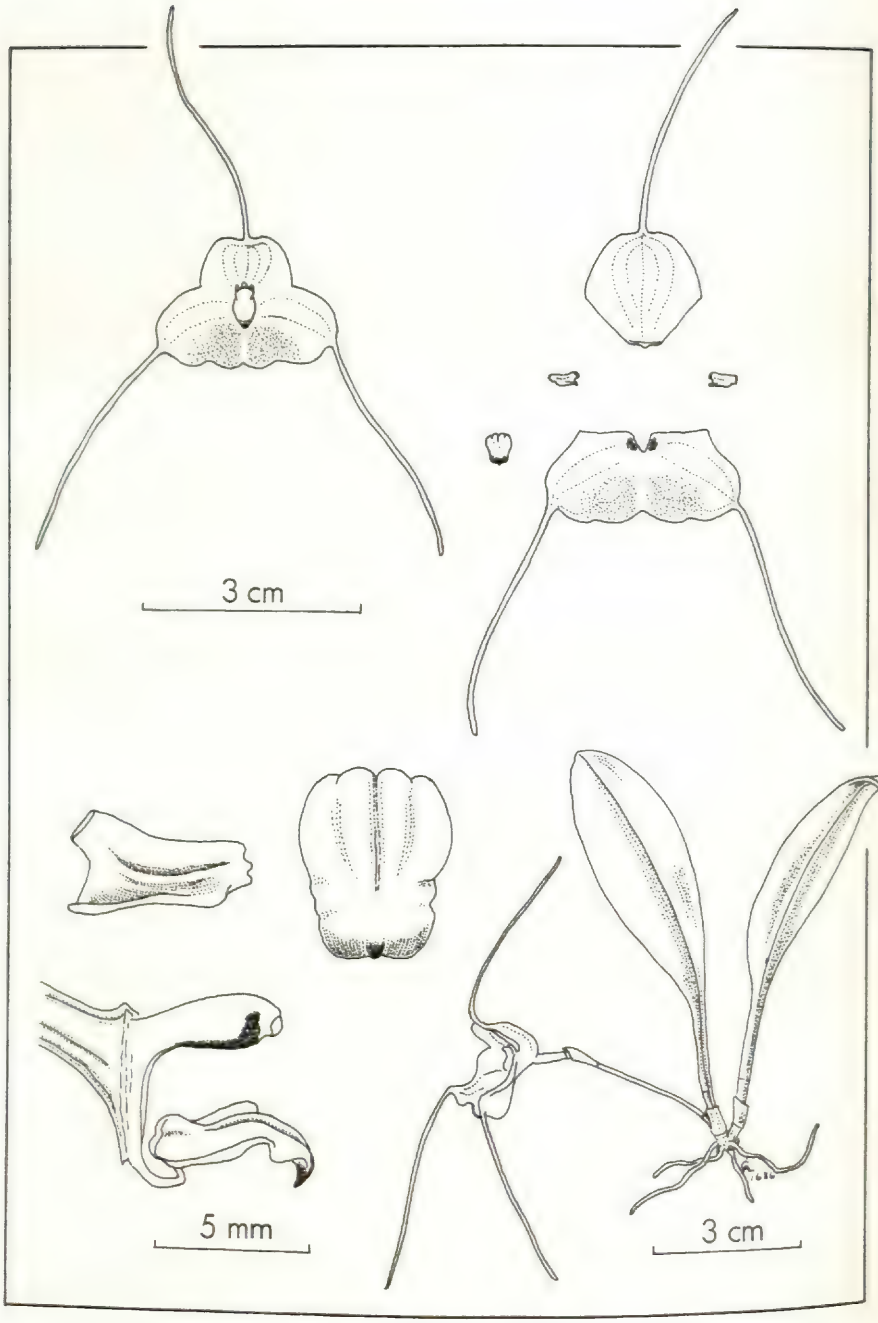


Plate 450. Masdevallia sanctae-inesiae

Masdevallia sanctae-inesiae Luer & Malo, Phytologia 39: 228, 1978.

Ety.: Named for the orchid finca Santa Ines of Benigno Malo near Tarqui south of Cuenca.

Plants small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, 8-15 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 6-14 cm long including a petiole 2-3 cm long, the blade elliptical, subacute to obtuse, 1.5-3 cm wide, cuneate below into the petiolate base. **Inflorescence** a solitary, showy flower borne by a slender, suberect peduncle 2.5-3 cm long, with a bract near the base, from low on the ramicaul; floral bract 6-8 mm long; pedicel 7-9 mm long; ovary 5 mm long; **dorsal sepal** translucent yellow, veined in yellow or green, suborbicular, 15 mm long, 15 mm wide, connate to the lateral sepals for 8 mm to form a broad, shallow, sepaline cup, the rounded apex abruptly contracted into a slender, erect, greenish orange tail 3-3.5 cm long; **lateral sepals** greenish white with an area of light orange suffusion on the inner halves, suborbicular to broadly ovate, oblique, 12 mm long, 12 mm wide, connate for 8 mm, the rounded apices abruptly contracted into tails similar to that of the dorsal sepal; **petals** greenish white, more or less oblong, 6 mm long, 3 mm wide, the truncate apex tridentate, the labellar margin with a longitudinal, callous wing ending in a broad, triangular, acute tooth just above the base, the base oblique; **lip** erect, yellow-green, becoming orange toward the apex, oblong-subquadrate, 6 mm long, 5 mm wide, the broadly truncate apex margined in deep purple, with a small midline callus, the sides undulate, the base with a pair of low, rounded calli, hinged beneath; **column** greenish white with purple margins, semiterete, 5 mm long, the foot nearly as long, with a slender, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic on the eastern slopes of the Andes in the southern part of the province, alt. 2500 m, May 1973, collected by B. Malo, cultivated at Finca Santa Ines near Tarqui south of Cuenca, 11 July 1977, *C. Luer 1686* (Holotype: SEL); Valle del Paute, alt. 2200 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13660* (MO).

This uncommon species is endemic in southeastern Ecuador where it was first collected by Benigno Malo of Cuenca, Ecuador. The pretty, solitary flower is recognized by the widely spread but deeply connate, rounded, greenish white sepals with a conspicuous suffusion of orange on the inner halves of the lateral sepals. In the center of the flower the broadly subquadrate lip stands erect and exposed along with the petals and column.

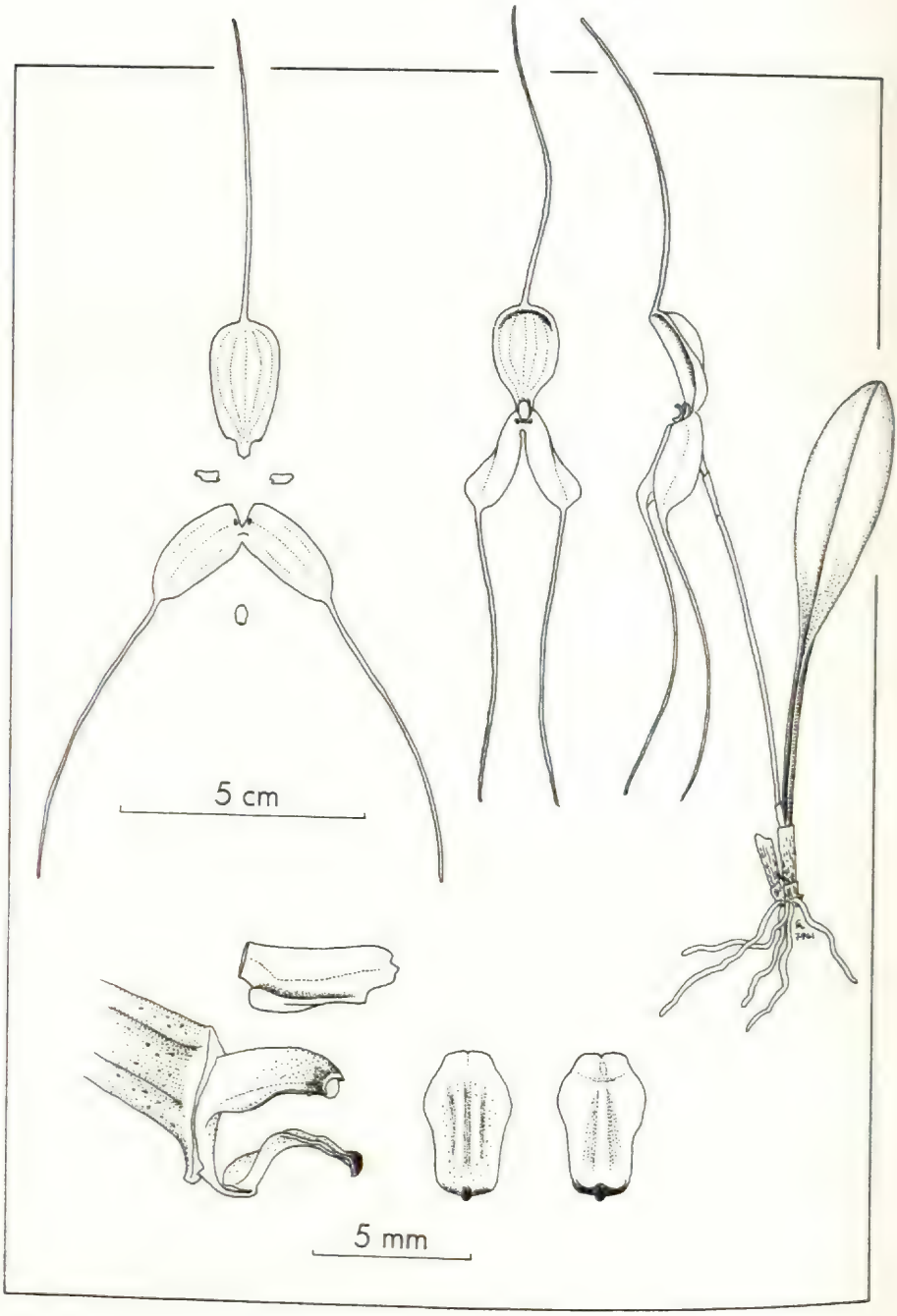


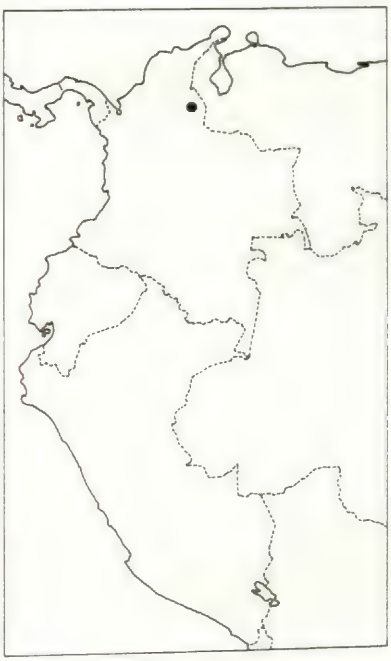
Plate 451. Masdevallia schizantha

Masdevallia schizantha Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 134, 1922.

Ety.: From the Greek *schizanthos*, "a cleft flower," referring to the free dorsal sepal.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-9 cm long including the slender petiole 1.5-3 cm long, the blade elliptical, subacute to obtuse, 1.5-2.3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4-7 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7-10 mm long; pedicel 10-13 mm long; ovary 5-8 mm long; **sepals** greenish white, glabrous, the dorsal sepal erect, elliptical-obovate, concave toward the apex, the sides reflexed below the middle, 27 mm long, 15 mm wide, connate to the lateral sepals for 4 mm to form a widespread, shallow cup, the rounded apex abruptly contracted into an erect, filiform, light green tail 5.5-6.5 cm long, the lateral sepals deflexed, oblong, 24 mm long, 10 mm wide, connate 3 mm beneath the column-foot, with a small dark spot at the base, the apices obtuse to rounded, contracted into slender, tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 2 mm wide, the lower margin longitudinally callous, ending in a short, obtuse, process above the base; **lip** erect, yellow, minutely dotted with purple, oblong, 4.5 mm long, 2.75 mm wide, the apex broadly rounded with a dark purple, midline, marginal callus, the disc with a low pair of longitudinal calli, the base subcordate, hinged beneath; **column** white, marked with purple, semiterete, 4 mm long, the foot 3 mm long with an incurved extension.

COLOMBIA: **Norte de Santander**: Pico Diamanta, alt. 2600-2700 m, ca. 1879, *W. Kalbreyer 1095* (Holotype of *M. schizantha* destroyed at B); cloud forest, Alto de Santa Inés, alt. 2100 m, 13 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10327* (Neotype of *M. schizantha* here designated: MO); same area, 24 May 1982, *C. Luer R. Escobar & D. Portillo 7961* (SEL).



In 1922, Kränzlin described as *M. schizantha*, a 43-year-old collection by Kalbreyer from an area now in the department of Santander del Norte in the Eastern Cordillera of Colombia. Unfortunately, most of Kalbreyer's collections were destroyed at B (the Berlin-Dahlem herbarium), so the positive identification of this species is not possible. Nevertheless, recent collections from a nearby area answer Kränzlin's description.

Vegetatively similar to numerous other related species, this species is distinguished by the large, greenish white flower with widely spread sepals with rounded apices abruptly contracted into exceptionally long, slender tails. It is superficially similar to the colorful *M. setacea* from southern Ecuador and adjacent Peru, which is distinguished by acute, acuminate lateral sepals.

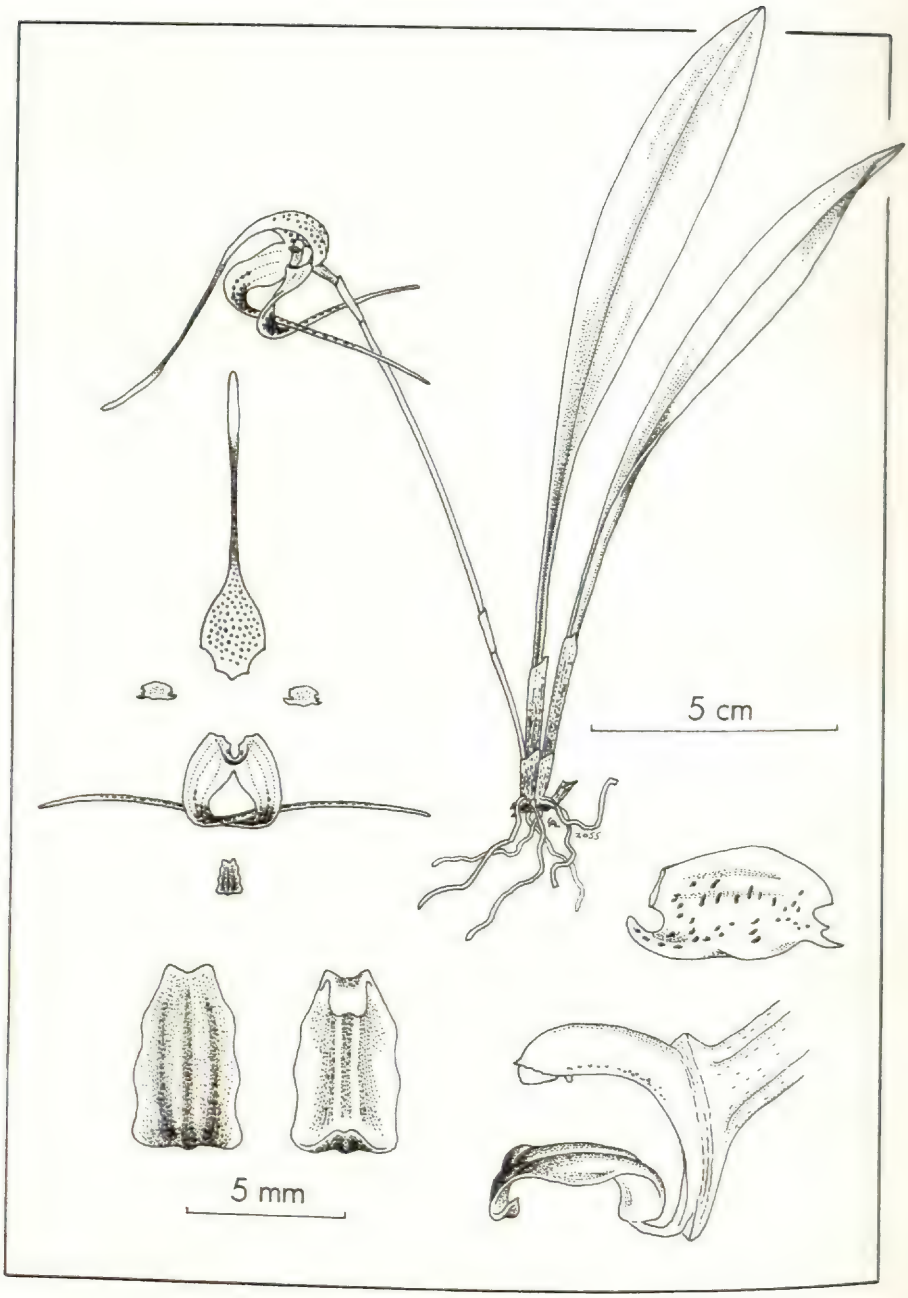


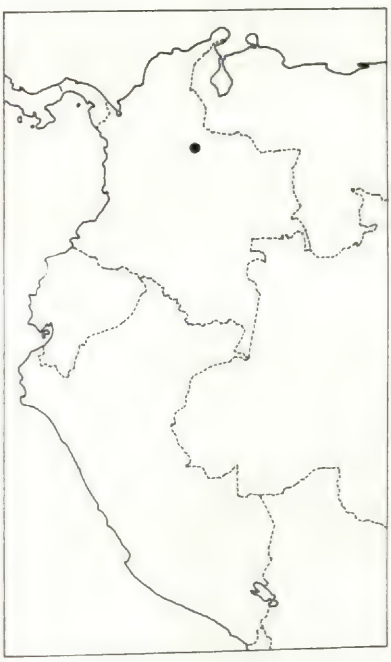
Plate 452. Masdevallia schmidt-mummii

Masdevallia schmidt-mummii Luer & Escobar, Orquideología 13: 96, 1978.

Ety: Named in honor of Dr. Helmuth Schmidt-Mumm of Bogotá, Colombia, who introduced this species into cultivation.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-4.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 9-15 cm long including the petiole 2-3 cm long, the blade narrowly elliptical, acute to subacute, 1.6-2.3 cm wide, gradually narrowed below into the petiole. **Inflorescence** a showy, solitary flower, borne by a slender, suberect peduncle, 8-11 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 10 mm long; ovary 5-6 mm long; **sepals** greenish white, dotted with purple, glabrous, the dorsal sepal ovate, concave, 20 mm long, 13 mm wide unexpanded, connate to the lateral sepals for 5-6 mm to form a shallow, gaping, sepaline cup, the apex obtuse, contracted into a forwardly directed to deflexed, slender, purple tail 3-4 cm long, more or less thickened terminally, the lateral sepals yellow toward the base, mottled with purple at the apex, narrowly falcate-ovate, ca. 20 mm long, 9 mm wide, connate 5 mm into a short mentum behind a transverse fold, the falcate free portions attenuated into slender, reflexed, decussate tails ca. 5 cm long; **petals** yellow-white, marked with purple, elliptical-oblong, 6 mm long, 3.5 mm wide, unevenly tridentate at the apex, the labellar margin with a broadly rounded, longitudinal callus ending in an acute retrorse process at the base; **lip** red-purple, erect in the natural position, cuneate-oblong, arcuate, 7 mm long, 3.5 mm wide, the apex obtuse, recurved, with a small, marginal, purple callus, the disc shallowly sulcate between two low, longitudinal calli, the base narrowed, subcordate, thickened, hinged beneath; **column** white, dotted with purple, semiterete, 5 mm long, the foot equally long, with an incurved extension.

COLOMBIA: **Santander**: Charalá, Páramo de la Rusia, alt. 2200-2600 m, 1977, collected by J. Guevara, cultivated by O.J. Arango at La Estrella, *R. Escobar 1822* (Holotype: JAUM; Isotype: SEL; clonotype: K); same collection, cultivated 16 Oct. 1977, *C. Luer 2055* (SEL); between Charalá and Virolín, alt. ca. 1800 m, collected by E. Valencia 1 May 1983, *C. Luer 8912* (SEL); same collection, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13228* (MO).



This species, apparently endemic in a limited area in the Eastern Cordillera of Colombia, had been in cultivation by Helmuth Schmidt-Mumm in Bogotá at least ten years before the formal description. Although not vegetatively distinct, the flowers are easily distinguished by the long slender, crossed tails of the lateral sepals. The tail of the dorsal sepal curves forward and downward. The sepals are white, variously dotted and mottled with purple, the pale, colorless variations outnumbering the more colorful forms.

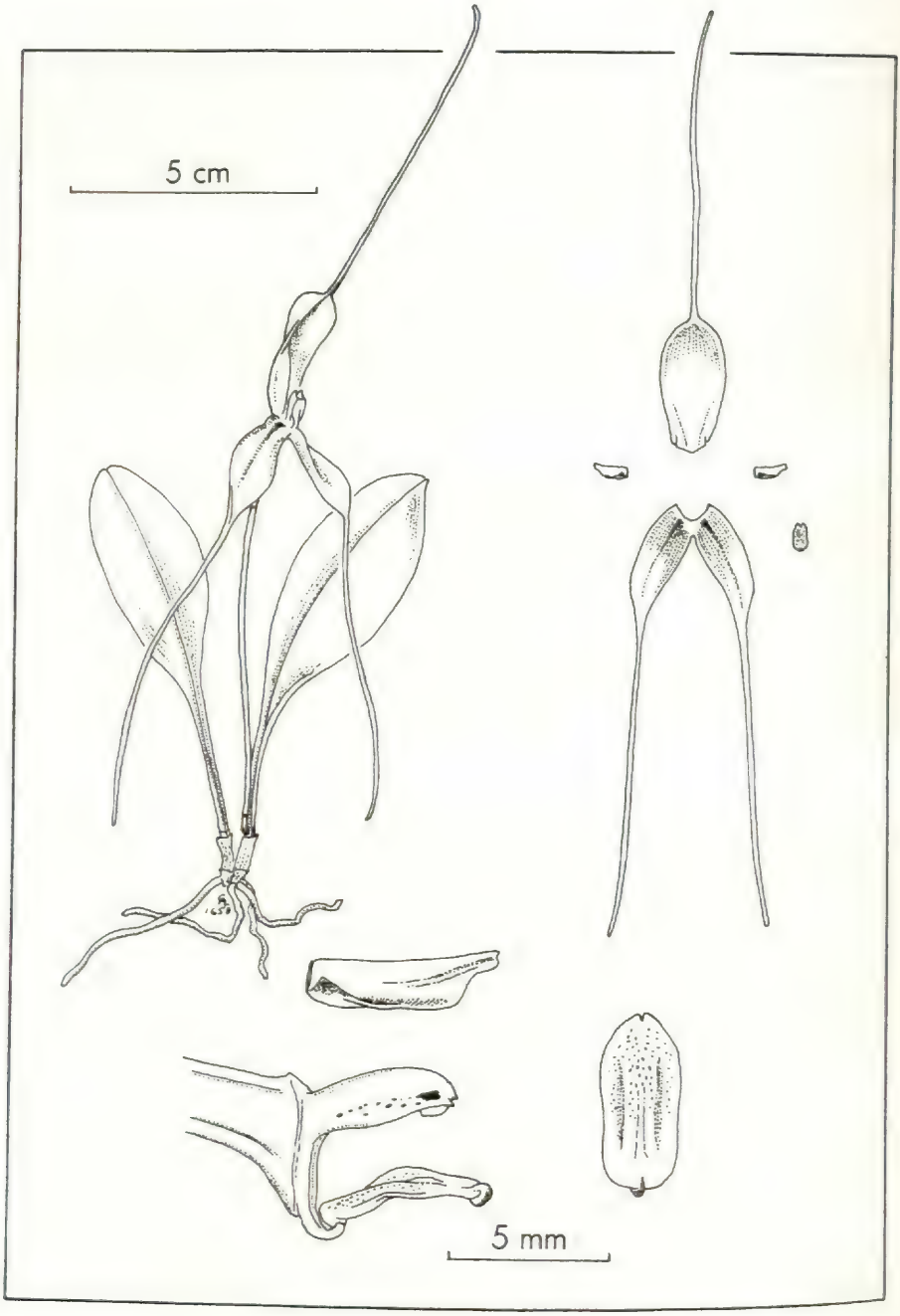


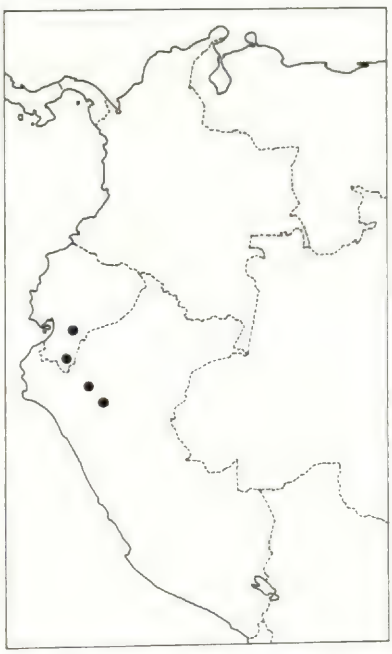
Plate 453. Masdevallia setacea

Masdevallia setacea Luer & Malo, Selbyana 2: 379, 1978.

Ety.: From the Latin *setaceus*, "bearing bristles," referring to the three long tails of the sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, often mottled with black, coriaceous, petiolate, 5-9 cm long including the slender, blackish petiole 2-3 cm long, the blade elliptical, obtuse, 1.5-2.5 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 6-9 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 18-20 mm long; ovary 6 mm long; **sepals** orange to yellow-green, suffused with rose to purple, microscopically cellular-glandular within, the dorsal sepal erect, elliptical, concave toward the apex, the sides reflexed below the middle, 25-30 mm long, 12 mm wide, connate to the lateral sepals for 5 mm to form a widespread, shallow cup, the rounded apex abruptly contracted into an erect, filiform, greenish orange tail 6-7 cm long, the lateral sepals deflexed, oblong, 22-27 mm long, 8 mm wide, connate 5 mm beneath the column-foot, the acute apices acuminate into tails similar to that of the dorsal sepal; **petals** white, marked with purple, oblong, 6 mm long, 1.5 mm wide, narrowed apically into an oblong truncate-retuse apex, the lower margin longitudinally callous, ending in a short, obtuse, incurved angle at the base; **lip** erect, rose, dotted with purple, oblong, 5.5 mm long, 2.5 mm wide, the apex rounded with a dark purple, midline, marginal callus, the disc with a low pair of longitudinal calli, the base narrowly subcordate, hinged beneath; **column** white, marked with purple, semiterete, 4.5 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest on the slopes east of Cuenca, alt. 1700 m, April 1975, collected by B. Malo, cultivated at Tarqui near Cuenca, 9 July 1977, *C. Luer 1658* (Holotype: SEL). **Zamora-Chinchipe**: epiphytic in cloud forest above Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9597* (MO).
PERU: **San Martín**: Venceremos, alt. 1600 m, collected by C. Head, cultivated by J & L Orchids, Easton, CT., 10 Dec. 1988, *C. Luer 13818* (MO). **Amazonas**: Bongara, Pomacochas, alt. 2200 m, 20 June 1991, *M. Arias S. 001* (MO).



The species is uncommon but widely distributed in southeastern Ecuador and northeastern Peru. Vegetatively similar to many other related species with blackish stems, this graceful species is easily recognized by the large but slender, long-tailed flower. The sepals are light yellowish or greenish and variously suffused with rose, and in extreme cases, the sepals are totally purple. The dorsal sepal with its cucullate apex and tail stands erect while the narrow lateral sepals are deflexed below with long-acuminate apices. The petals are narrowed into an oblong, apical segment beyond the callous, lower margin. The lip is simply oblong.

The similarly long-tailed *M. schizantha* from the Eastern Cordillera of Colombia, is distinguished by greenish white flowers and obtuse, lateral sepals contracted into tails instead of being acute and acuminate.

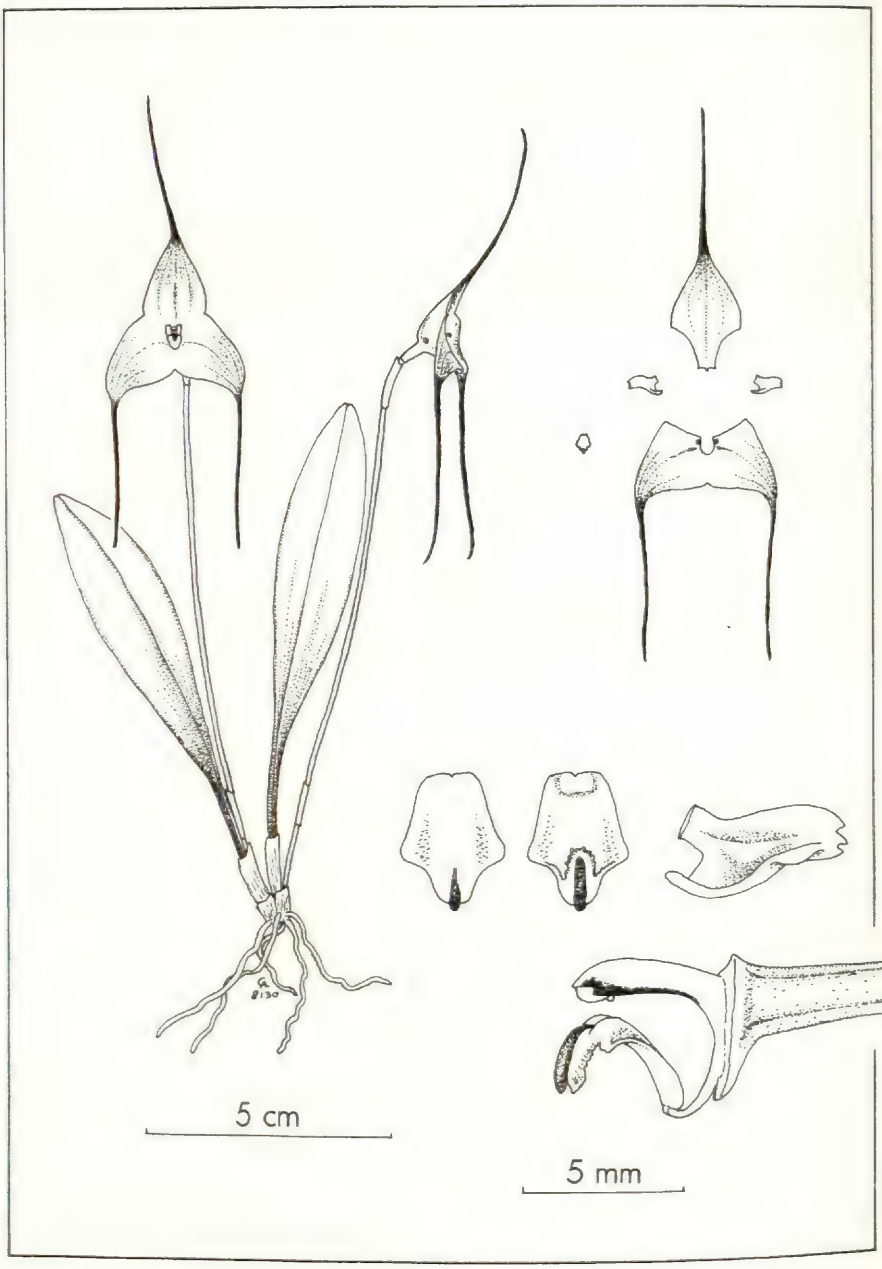


Plate 454. Masdevallia triangularis

Masdevallia triangularis Lindl., Orch. Linden. 5, 1846.

Ety.: From the Latin *triangularis*, "triangular," referring to the shape of the sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-12 cm long including the blackish petiole 2-5 cm long, the blade elliptical-ovate, subacute to obtuse, 1.5-3 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 6-12 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 8-11 mm long; pedicel 8-11 mm long; ovary 6-7 mm long; **sepals** yellow, minutely dotted with red within, glabrous, the dorsal sepal ovate, 18-23 mm long, 10-13 mm wide, connate to the lateral sepals for 7-9 mm to form a widely spread, flat flower, the apex subacute, contracted into a slender, purplish tail 3-4.5 cm long, the lateral sepals triangular, 15-23 mm long, 10-14 mm wide, connate 5 mm, the acute to subacute apices contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 2 mm wide, the truncate apex tridentate, the labellar margin with a thick carina terminating above the base in a thick, retrorse tooth; **lip** thin, light yellow, marked with purple, obcuneate-obovate, 4 mm long, 3 mm wide, the apex denticulate, narrowed and deflexed, with a longitudinal midline callus, the base subcordate or rounded, hinged beneath; **column** white with the margin purple, semiterete, 4.5 mm long, the foot 3 mm long including the slender, incurved extension.

VENEZUELA: **Mérida**: Quebrada of Marmuquena near Bailadores, alt. 4,800 ft., 1843, *J. Linden 1471* (Holotype: K, Isotypes: BM, BR, G, W); "Caracas," 1842, *J. Linden 150* (G, P, W); "Caracas," alt. 6,000 ft., 1853, *H. Wagener 130, 131* (W); Carabobo, alt. 4,500 ft., June 1846, *L. Schlim 681* (BR, K, LD, G, K, LE, P, W); *Fendler 1371* (AMES, K). **Aragua**: Colonia Tovar, *Moritz 1914* (P, W); Colonia Tovar, alt. 1700-2300 m, 11 Mar. 1921, *H. Pittier 9325* (AMES, G, NY, US, VEN); between Maracay and Choroni, alt. 1600 m, 12 Dec. 1953, *J. Renz 8138* (BAS); **Dist. Fed.**: around Colonia Tovar, alt. 2000 m, 6 Dec. 1956, *J. Renz 8855* (BAS); Portochuelo, Peñita, alt. 1300 m, 24 June 1966, *J.A. Steyermark & L. Nevling, Jr. 95927* (AMES, VEN); Portochuelo, Pico Periquito, Parq. Henri Pittieri, 30 July 1980, *B. Manara s.n.* (VEN). **Lara**: Jimenez, between Sanare and El Volcan, alt. 1700 m, 13 June 1959, *J. Renz 9514* (BAS); Iribarren, alt. 500 m, 11 Aug. 1970, *J.A. Steyermark, F. Delascio & G.C.K. Dunsterville 103693* (AMES, VEN).
COLOMBIA: **Santander**: old Province of Pomplona, alt. 8,500 ft., June 1848, *L. Schlim 1704* (K, LE); Eastern Cordillera without specific locality, purchased by Zeller from E. Valencia, cultivated by W. Königer in Munich, 9 Aug. 1984, *C. Luer 10400* (MO).
ECUADOR: **Loja**: epiphytic in cloud forest in the Parque Nacional Podocarpus, alt. 1500 m, 1987, collected by A. Andreetta & M. Portilla, cultivated at Paute, 16 May 1988, *C. Luer 13372* (MO).

This species occurs in the coastal mountains of Venezuela, the mountains of western Venezuela and adjacent Colombia, and southern Ecuador in the Parqué Nacionál Podocarpus. It is closely related to *M. instar* from the nearby Cajanuma mountains and northern Peru. Where populations of the two grow in proximity, flowers with intermediate characters have been seen.

Masdevallia triangularis is easily distinguished by the widely spread, flat flower with the angles between the sepals obtuse instead of acute as in *M. instar*. The apices of the lateral sepals are acute instead of subacute, and there is no prominent secondary mentum. The lip has a narrow, apical segment, or lobe, that is denticulate and acutely deflexed. This lobe is clearly sketched on the type-sheet. It is absent in *M. instar*.

The photo identified as *M. triangularis* in the *American Orchid Society Bulletin*, Feb. 1964, page 116, is *M. discolor*.

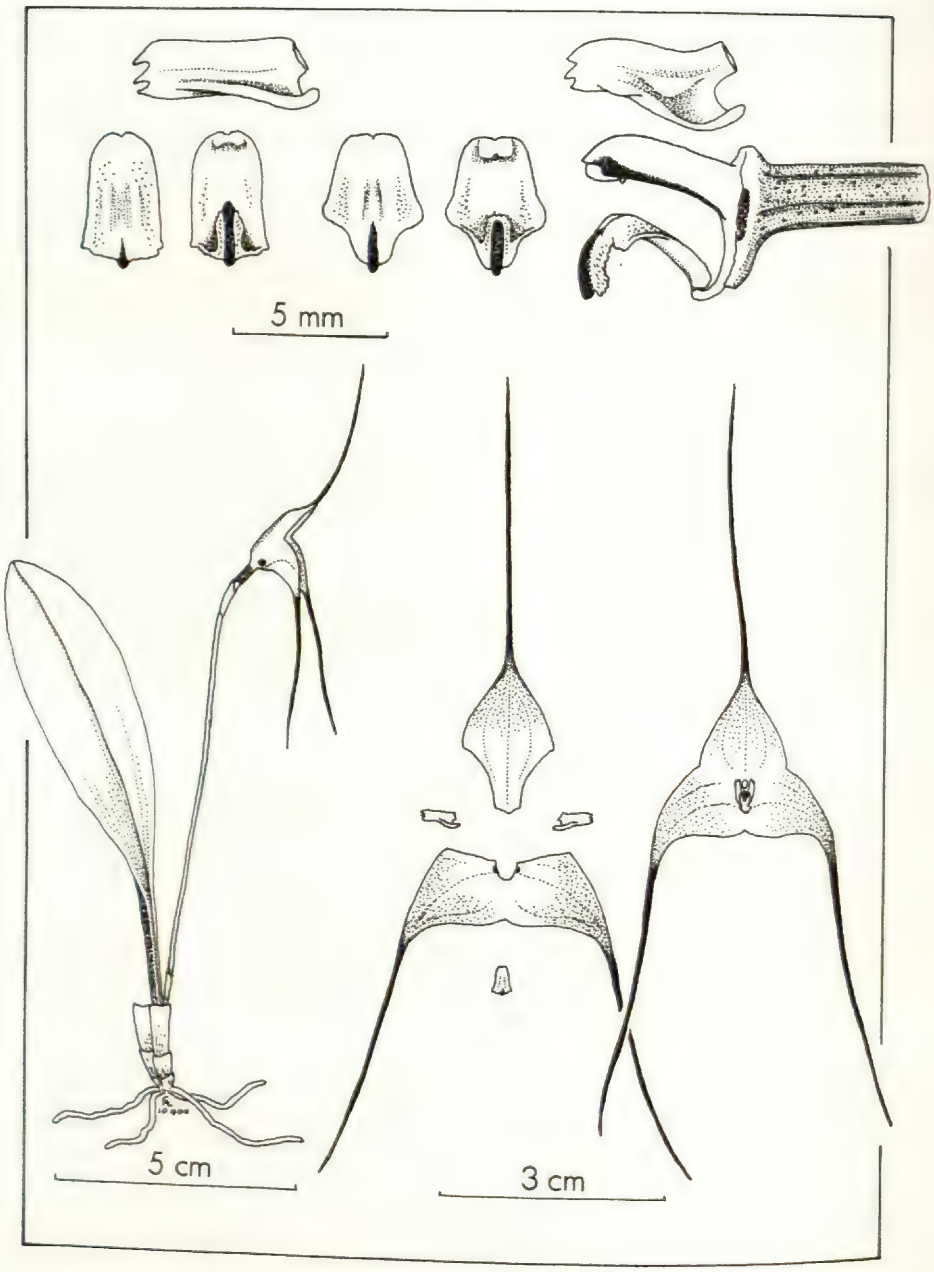


Plate 456. Masdevallia triangularis

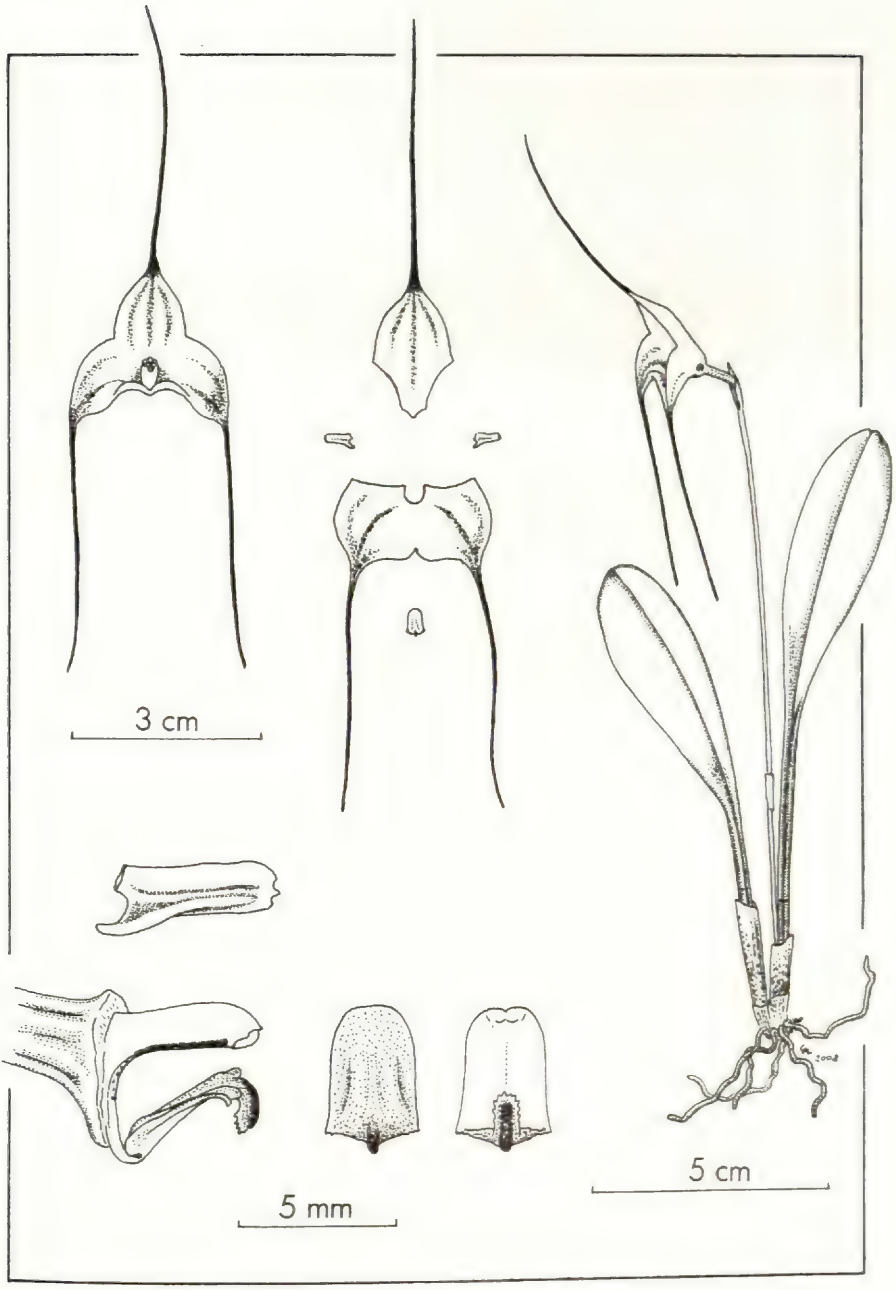


Plate 455. Masdevallia triangularis

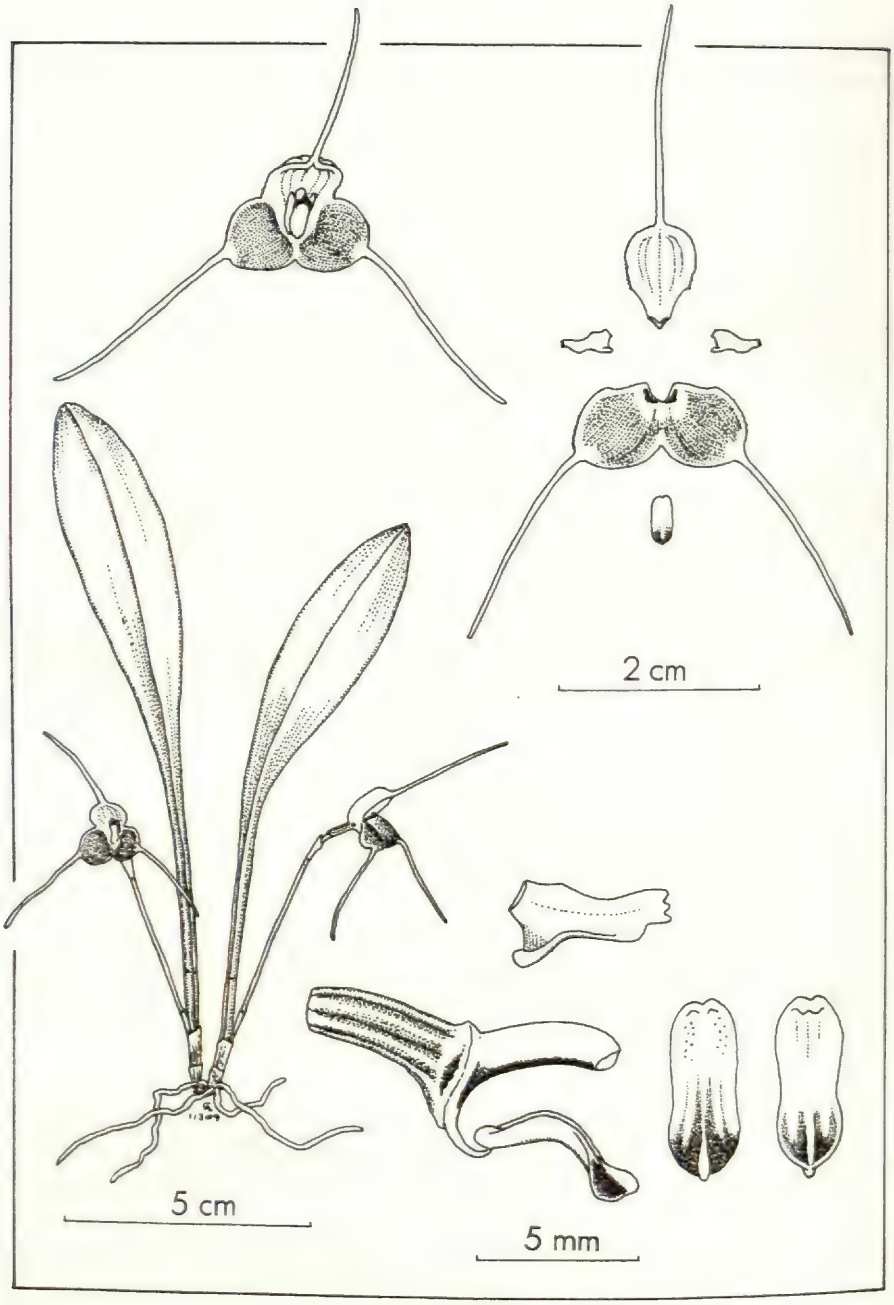


Plate 458. Masdevallia valenciae

Masdevallia tricallosa Königer, Die Orchidee 42: 10, 1991.

Ety.: From the Latin *tricallosus*, "with three calli," referring to the lip.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 4-6.5 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, obtuse, 1.3-2 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 5-5.5 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 12 mm long; ovary greenish white, 5 mm long; **sepals** light yellow-green, glabrous externally, microscopically pubescent within, the dorsal sepal with a thin, red, midvein, obovate, concave, 17 mm long, 10 mm wide, connate to the lateral sepals for 4 mm to form a shallow, widely spread, sepaline cup, the apex rounded, contracted into a slender, erect, yellow-green tail 5 cm long, the lateral sepals with a small patch of red at the base, connate 3 mm, 15 mm long, 10 mm wide, the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** white, irregularly oblong, 6 mm long, 1 mm wide near the apex, 2.5 mm wide below the middle, the apex sharply tridentate, the labellar margin with a longitudinal callus ending in a broad, rounded process above the unguiculate base; **lip** greenish white, oblong-subpanduriform, 5.75 mm long, 2.75 mm wide, the apex truncate, with 3 dark purple calli, the disc thickened below the middle, the base subcordate, hinged below; **column** greenish white, dotted with purple, semiterete, 5 mm long, the foot with the slender, incurved extension 5 mm long.

PERU: **Amazonas**: Bongará, between Chachapoyas and Pomacochas, alt. 2000 m, 2 Aug. 1978, *W. Königer, H. Königer et al. K-3m* (Holotype: M; Isotypes: K, SEL, USM, W); same collection, cultivated by W. Königer in Munich, Germany, 19 Sept. 1981, *C. Luer 6499* (SEL); same collection, cultivated by W. Königer, 25 Oct. 1985, *C. Luer 6499* (MO).

This species is endemic in the forests of northern Peru where it is known only from the original collection. It is characterized by the medium-sized habit with long-petiolate leaves and a medium-sized, widely spread, light yellow-green, long-tailed flower held as high as the leaves. The erect lip with three, conspicuous, dark purple calli at the apex stands exposed in the center of the flower.

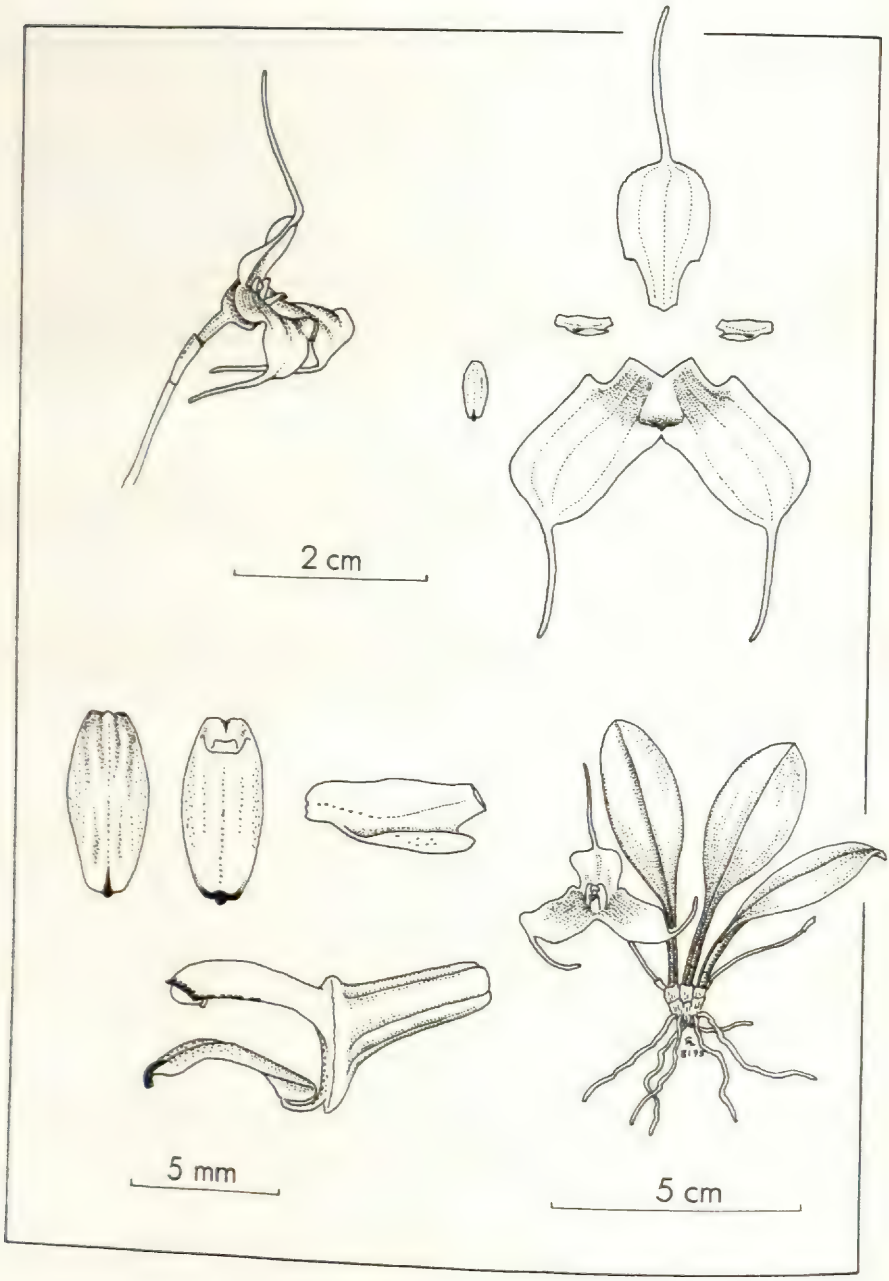


Plate 459. Masdevallia venatoria

Masdevallia valenciae Luer & Escobar, Orquideología 16(3): 36, 1986.

Ety.: Named in honor of Eladio Valencia of Medellín, Colombia, who discovered this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-13 cm long including the blackish petiole 2-4.5 cm long, the blade elliptical-obovate, subacute, 1.7-2.3 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect to suberect peduncle 3.5-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 9 mm long; ovary 5 mm long; **sepals** glabrous, the dorsal sepal white with 5 rose veins, obovate, concave, 10 mm long, 7 mm wide, connate to the lateral sepals for 5 mm to form a shallow, gaping, sepaline cup, the margins erose near the junction, the rounded apex abruptly contracted into an erect, slender, green tail 24 mm long, the lateral sepals yellow but diffusely suffused with red-purple except for the margins, and deep purple at the basal union to the column-foot, suborbicular, 9 mm long, 8 mm wide, connate 3 mm to form a shallow mentum below the column-foot, the rounded apices contracted into slender, yellow tails 23 mm long; **petals** white, more or less oblong, 5 mm long, 1-2 mm wide, the truncate apex tridentate, the labellar margin with a well-developed, longitudinal, winglike carina, terminating in a thick, obtuse, retrorse process above the broadly unguiculate base; **lip** erect, white, suffused with purple above the middle, oblong, 5 mm long, 2 mm wide, the apex rounded with a tall, midline callus, the disc with a low pair of longitudinal calli, the base subcordate, hinged beneath; **column** white, with a purple margin, semiterete, 4 mm long, the foot 1.5 mm long, with an equally long incurved extension.

COLOMBIA: **Norte de Santander**: epiphytic in cloud forest north of Villacaro, alt. 2900 m, collected by E. Valencia, R. Escobar, C. & J. Luer, 11 May 1984, cultivated at Colomborquídeas 9 May 1985, *C. Luer 11309* (Holotype: JAUM; Isotype: MO).

This species was first collected without flowers by Eladio Valencia during a trip to the Eastern Cordillera of Colombia in 1984 with Rodrigo Escobar and Jane and Carl Luer. A year later the collected plants began to flower in cultivation at Colomborquídeas. It was thought that they had been collected near Alto de San Francisco at 2900 meters above sea level, but subsequent collections at a lower altitude of 2050 meters at Alto de Santa Inés, about 150 kilometers to the southeast, indicate that the original report was probably in error. *Masdevallia valenciae* grows sympatrically with *M. odontocera* and *M. schizantha*.

Masdevallia valenciae is related to *M. caudata* and its affinities, but it is easily distinguished by the smaller flowers, a white dorsal sepal with red veins, red-purple lateral sepals, and a tall, midline callus near the apex of the lip.

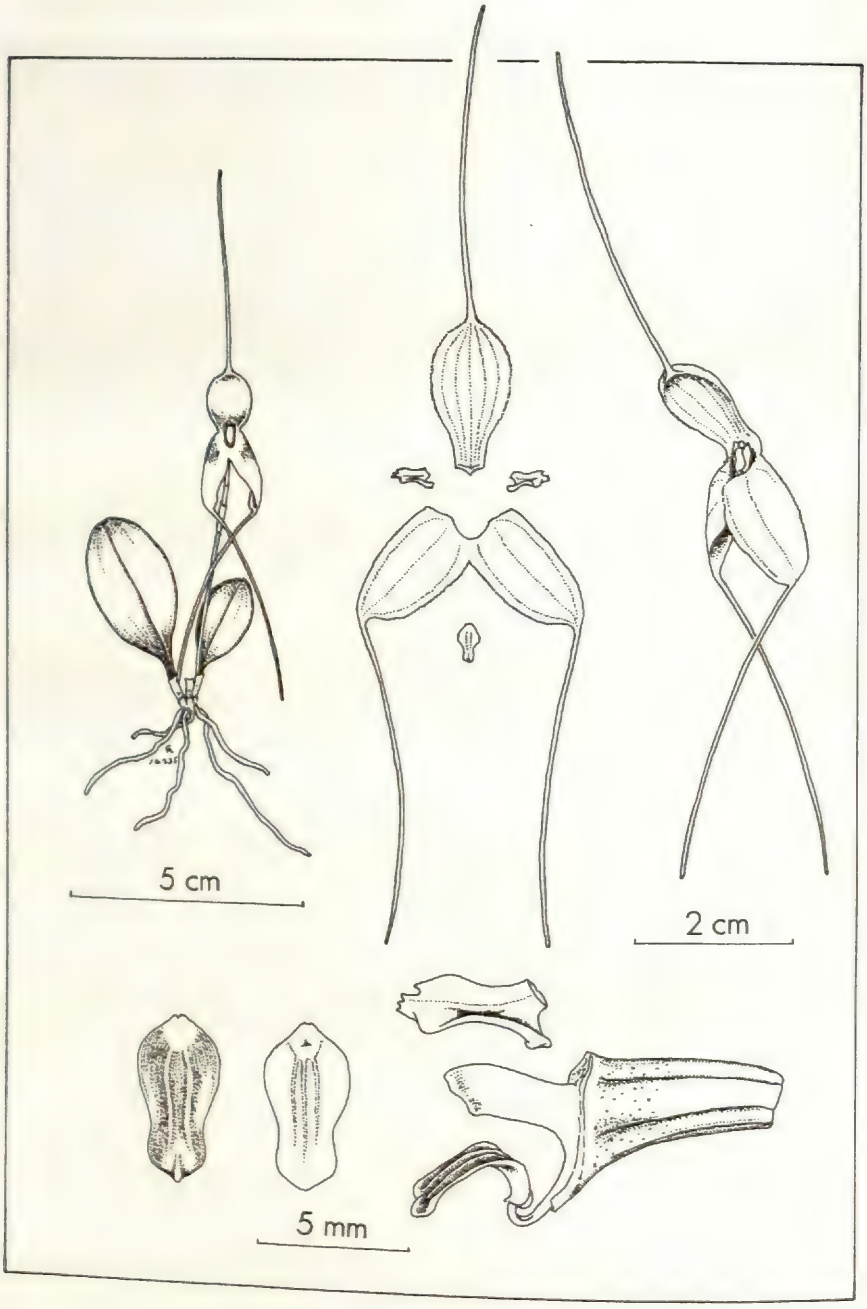


Plate 460. Masdevallia vexillifera

Masdevallia venatoria Luer & Malo, Phytologia 54: 384, 1983.

Ety.: From the Latin *venatorius*, "of or belonging to the hunter," in dedication to all who look for orchids.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 0.5-1 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, 3-5 cm long including the petiole 0.8-1.5 cm long, the blade elliptical, obtuse, 1-1.7 cm wide, the base cuneate into the more or less blackish petiole. **Inflorescence** a solitary flower borne by a suberect peduncle 2-2.5 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 6 mm long; pedicel 5 mm long; ovary 5 mm long; **sepals** colorful, glabrous, the free margins minutely erose, the dorsal sepal light red-orange below the middle fading into yellow above the middle, obovate, shallowly concave, 15 mm long, 9.5 mm wide, connate to the lateral sepals for 6 mm to form a shallow, gaping cup, the apex rounded, abruptly contracted into a slender, orange tail 16 mm long, the lateral sepals red on the lower third turning to red-orange on the middle third and light red-orange on the distal third, oblong, 18 mm long, 10 mm wide, more or less reflexed, connate for 6 mm to form a shallow mentum, the apices obtuse, oblique, contracted into slender, orange tails 10 mm long; **petals** white with a few purple dots, oblong, 6 mm long, 2 mm wide, the truncate apex shallowly bilobed, with a carina along the labellar margin ending in a short, obtuse tooth above the base; **lip** yellow, dotted with purple, elliptical, 6 mm long, 2.75 mm wide, the apex rounded with a small, marginal, purple callus, the base truncate, hinged beneath; **column** white, marked with purple on the margins, semiterete, 5 mm long, the foot with a slender, incurved extension 2 mm long.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest of the eastern slope of the mountain range east of the old trail from Loja to Zamora, alt. 2300 m, 9 Sept. 1981, collected by B. Malo, cultivated at Tarqui, 26 Oct. 1982, *C. Luer 8195* (Holotype: SEL); east of the pass between Loja and Zamora, alt. 2250 m, 22 May 1988, collected by W. Teague, A. Hirtz, W. Flores, A. Andreetta & C. Luer, cultivated by W. Teague in San Francisco, California, 1 Oct. 1988, *W. Teague s.n.* (MO); same area, alt. 2300 m, 21 Jan. 1992, collected by A. Hirtz, A. & P. Jesup, et al., cultivated in Quito, Oct. 1993, *A. Hirtz s.n.* (MO); between Loja and Zamora, alt. 2400 m, Feb. 1995, *A. Hirtz 5944* (MO).

This rare species is apparently endemic in one mountain valley in southeastern Ecuador where it has been discovered on a few occasions. It grows in the company of many other orchids, and the following other species of the genus *Masdevallia*: *M. anachaeta, M. citrinella, M. colossus, M. klabochiorum, M. norops, M. trochilus, M. tubulosa*, and *M. whiteana*.

Masdevallia venatoria is distinguished from its allies in section *Caudatae* by the rounded dorsal sepal, oblong, red-orange lateral sepals, without a basal dark spot; petals with a marginal callus without an angled wing above the middle; and a narrowly elliptical lip.

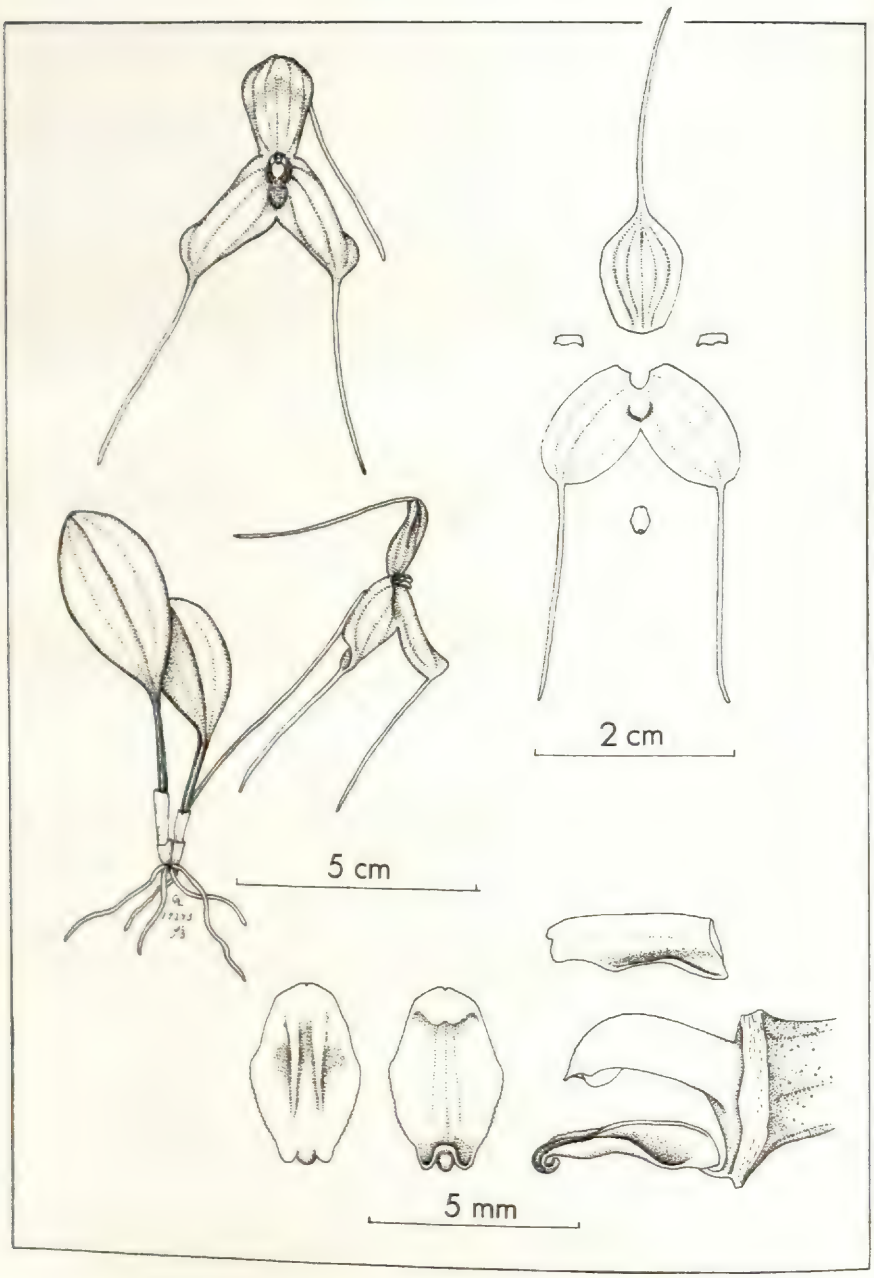


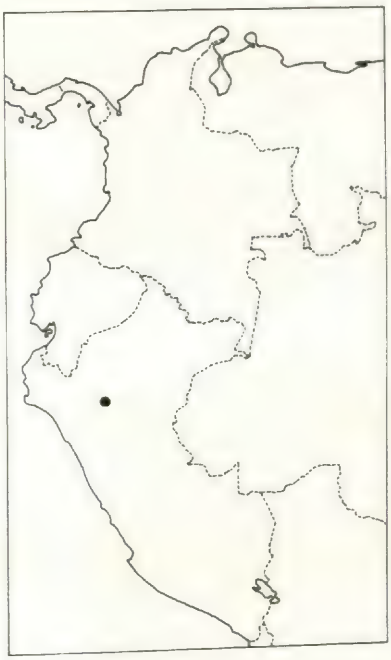
Plate 461. Masdevallia wuelfinghoffiana

Masdevallia vexillifera Luer, Lindleyana 8: 58, 1993.

Ety.: From the Latin *vexillifer*, "banner-bearing," referring to the flower held high above the leaf.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, black, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, dark green, 2-3.5 cm long including a blackish petiole ca. 0.5 cm long, the blade broadly elliptical, obtuse to rounded at the apex, 1.3-1.8 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 3-4 cm long, with a bract near the base, from near the base of a ramicaul; floral bract tubular, 14 mm long; pedicel 17 mm long; ovary 6 mm long; **sepals** pale flesh-colored, the laterals suffused with rose, lightly carinate, glabrous externally, minutely papillose within with minutely erose margins, the dorsal sepal obovate, concave, 18 mm long, 10 mm wide, connate to the lateral sepals for 2 mm to form a gaping flower, the apex rounded, abruptly contracted into an erect, slender, rose-colored tail 6 cm long, the lateral sepals reflexed, ovate, obtuse, oblique, 16 mm long, 9 mm wide, connate 2 mm, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong, 4.5 mm long, 2 mm wide, the apex subtruncate, dentate, the labellar margin with a longitudinal wing, thickly callous from above the middle, ending in an obtuse, more or less twisted process above the base; **lip** white, ovate-pyriform, arcuate, thin, 5 mm long, 2.5 mm wide, the apex obtuse, with a small, midline callus, the disc superficially channeled between a low pair of longitudinal calli, the base obtusely subcordate, hinged beneath; **column** white, suffused with red at the apex, semiterete, 3.5 mm long, the foot thick with a slender, incurved extension.

PERU: **San Martín**: between Roija and Chachapoyas, July 1991, cultivated at Hasselt, Belgium, Nov. 1991, *P. Cloes 852025* (Holotype: MO), C. Luer illustr. 16235.



This species is similar to *M. xanthina* and its relatives, but it is readily distinguished from them by the erect, long-tailed, flesh-colored flowers held high above the small, dark green, broadly elliptical to rounded leaves. No "eye-spot" is present at the bases of the reflexed lateral sepals. The sepals are minutely papillose within. The dorsal sepal is shallowly concave and proportionately long above the proportionately short connation into the sepaline cup. The petals are irregularly dentate at the apex and they bear a longitudinal wing along the labellar margin that becomes thick above the middle and terminates in an obtuse, more or less twisted process above the base. The lip is pyriform in outline and arcuate with a low pair of longitudinal calli.

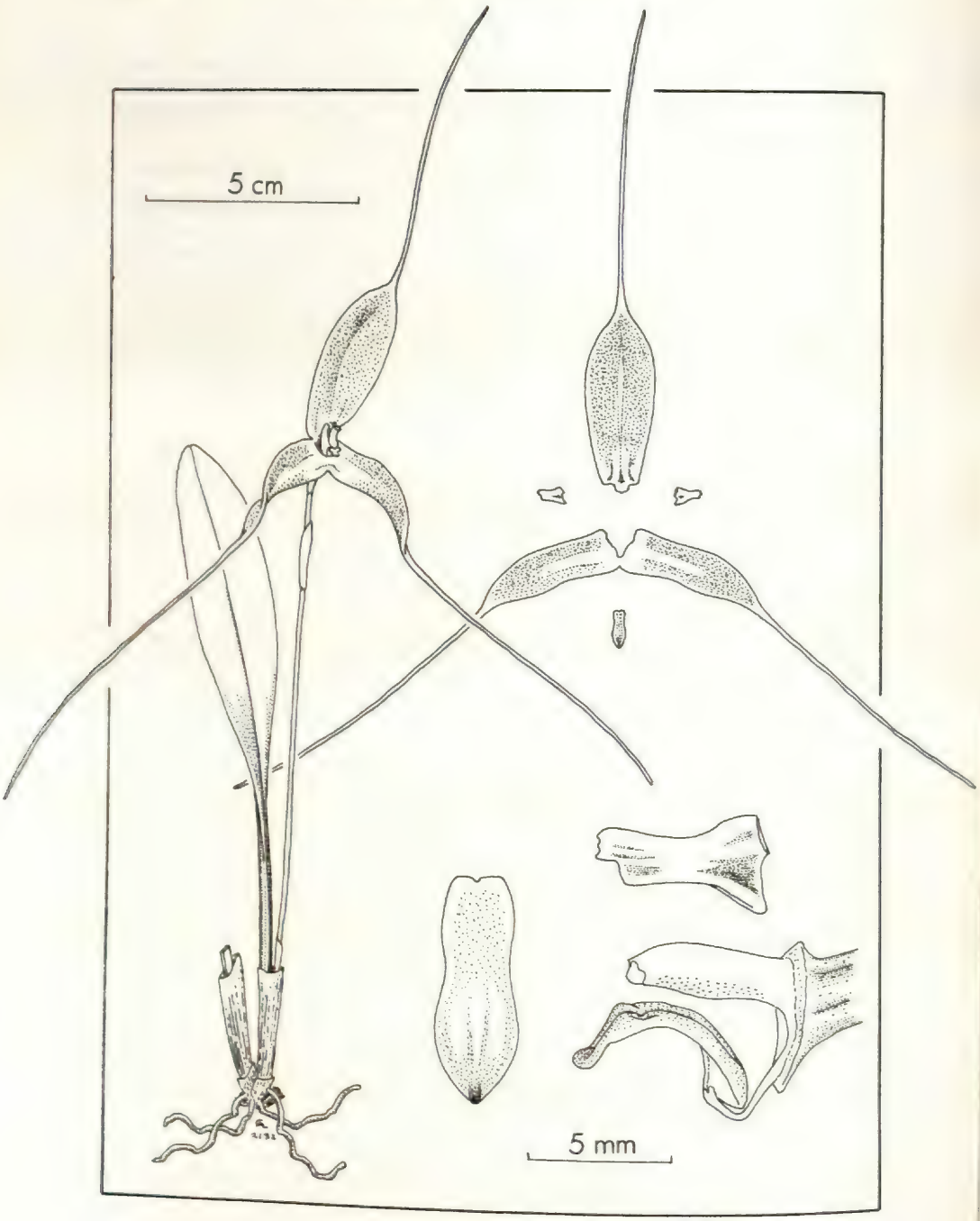


Plate 462. Masdevallia wurdackii

Masdevallia wuelfinghoffiana Luer & J.Portilla, Monogr. Syst. Bot. Missouri. Bot. Gard. 76: 153, 1999.

Ety.: Named for Rudolph Wülfinghoff of Stuttgart, Germany.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls blackish, slender, erect, 1-1.5 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4.5-6.5 cm long including the blackish petiole 2-2.5 cm long, the blade elliptical, obtuse to rounded at the apex, 1.7-2.2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 5-6 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 11 mm long; ovary 5-6 mm long; **sepals** intense red-purple, microscopically cellular-glandular within, the dorsal sepal erect, elliptical-obovate, flat to more or less convex, 18 mm long, 13 mm wide, 5-veined, connate to the lateral sepals for 3 mm to form a widespread, shallow cup, the rounded apex abruptly contracted into a suberect or reflexed, slender, yellow tail 4 cm long, the lateral sepals elliptical-oblong, with the sides recurved in the natural position, 20 mm long, 13 mm wide, connate 6 mm into a shallow cavity beneath the column-foot, the apices rounded, contracted into tails slightly shorter than that of the dorsal sepal; **petals** white with purple midvein, oblong, 4 mm long, 1.5 mm wide, the apex subtruncate, obscurely bilobed, the lower margin with a longitudinal callus, ending in a short, obtuse angle at the base; **lip** erect, white, suffused with purple, elliptical, 4.5 mm long, 2.25 mm wide, the apex obtuse, recurved, with a midline, marginal callus, the disc with a low pair of longitudinal calli on the middle third, the base thickened, subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 2 mm long with a short extension.

ECUADOR: **Zamora-Chinchipe**: between Loja and Zamora, alt. 1800 m, collected Oct. 1997 by Gilberto Merino, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 10* (Holotype: MO), C. Luer illustr. 19243.

This species, apparently endemic in the famous, orchid-rich area between Loja and Zamora, is closely allied to *M. xanthina* and its close relatives, but it is immediately distinguished by the intense, red-purple color of the sepals. It also differs with the dorsal sepal flat or convex instead of concave; and petals with the marginal callus ending in a short angle at the base instead of a thick, protruding process.

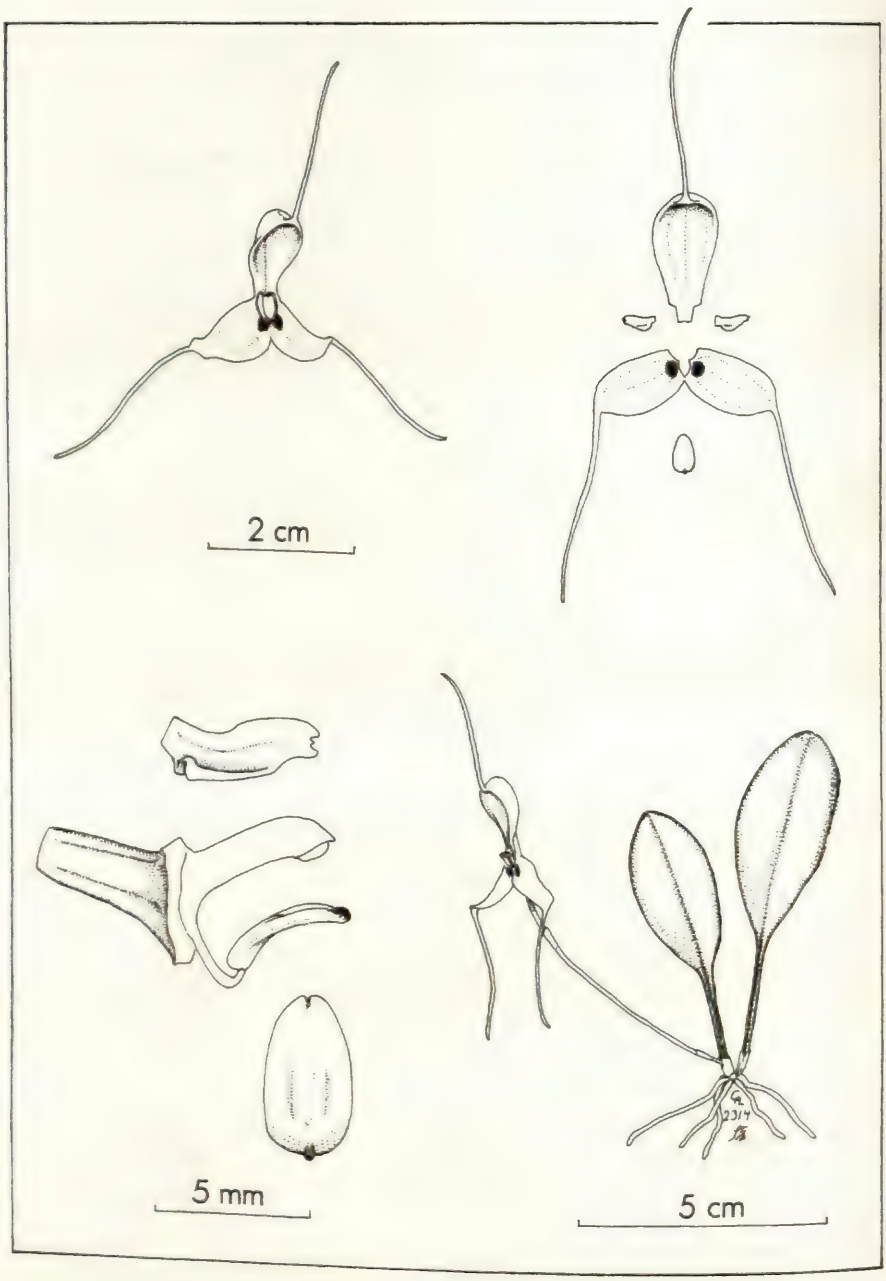


Plate 463. Masdevallia xanthina

Masdevallia wurdackii C. Schweinf., Fieldiana Bot. 33: 17, 1970.

Ety.: Named in honor of John J. Wurdack, who first discovered this species.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 2-5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 8-14 cm long including the petiole 2-5 cm long, the blade elliptical, obtuse, 1.8-3.5 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle, 9-17 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 10-20 mm long; pedicel 20-25 mm long; ovary 6-7 mm long; **sepals** light yellow-green, diffusely dotted with purple or brown, glabrous, the dorsal sepal obovate, concave, 33-40 mm long, 14-16 mm wide, connate to the lateral sepals for 5-6 mm to form a shallow, widely spread, sepaline cup, the apex rounded to obtuse, contracted into a slender, erect, yellow-green tail 7-9.5 cm long, the lateral sepals connate 3 mm, 30 mm long, 9-10 mm wide, the apices acute, contracted into tails similar to that of the dorsal sepal; **petals** white, irregularly oblong, 6 mm long, 1.5 mm wide near the apex, 3.5 mm wide above the base, the apex narrowly truncate, shallowly tridentate, the labellar margin with a longitudinal callus ending in a broad, narrowly obtuse process above the base; **lip** white, dotted with purple, oblong-subpanduriform, arcuate, 8 mm long, 3 mm wide, the apex obtuse, with a brown, rounded, marginal callus, the disc shallowly sulcate between a low pair of calli above the middle, the base truncate, hinged below; **column** white, dotted with purple, semiterete, 5.5 mm long, the foot 2 mm long, with a slender, incurved extension.

PERU: **Amazonas**: Bongará, southwest of Pomacochas, alt. 2200-2400 m, 16 June 1962, *J.J. Wurdack 859* (Holotype: US); same area, alt. 2000 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle, J. Meza et al. K-3a* (K, M, SEL, USM, W). Without locality, collected by J. Meza, cultivated at J & L Orchids, Easton, CT, 9 Nov. 1977, *C. Luer 2132* (SEL). Without locality, collected by J. Meza, cultivated at Orquideología, 18 Mar. 1989, *C. Luer 14247* (MO).

This species is endemic in the forests of northern Peru where it is infrequent. It was first collected by John J. Wurdack in 1962. *Masdevallia wurdackii* is characterized by the long-petiolate leaves and a large, widely spread, light yellow-green, long-tailed flower diffusely dotted with purple and held as high as the leaves. As with other closely related species, the erect lip is exposed in the center of the flower.

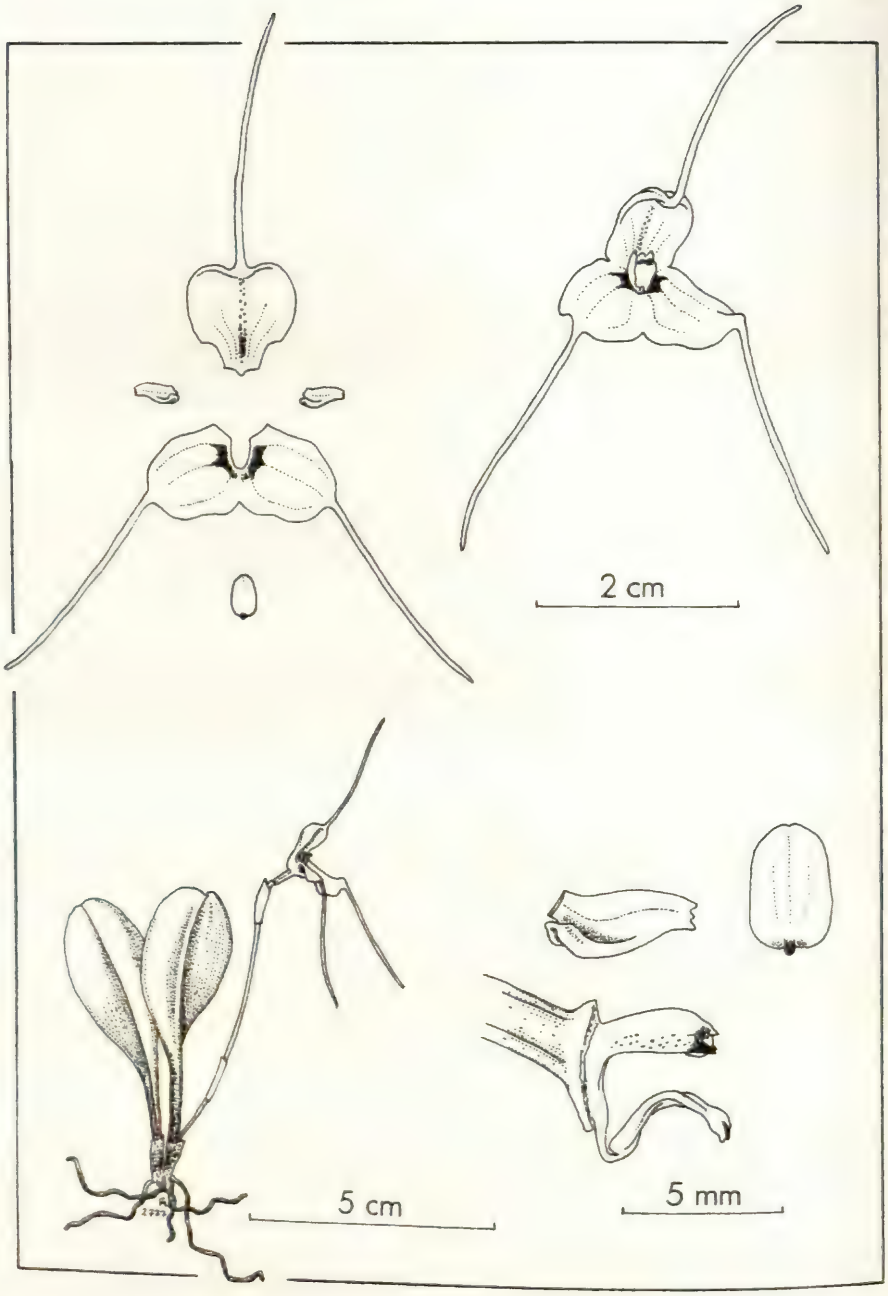


Plate 464. Masdevallia xanthina
(*Masdevallia pallida*)

Masdevallia xanthina Rchb.f., Gard. Chron. 13(1): 681, 1880.

Ety.: From the Greek *xanthos*, "yellow," referring to the color of the flower.

Syn.: *Masdevallia estradae* Rchb.f. var. *xanthina* (Rchb.f.) Veitch, Man. Orch. Pl. 5:42, 1889.

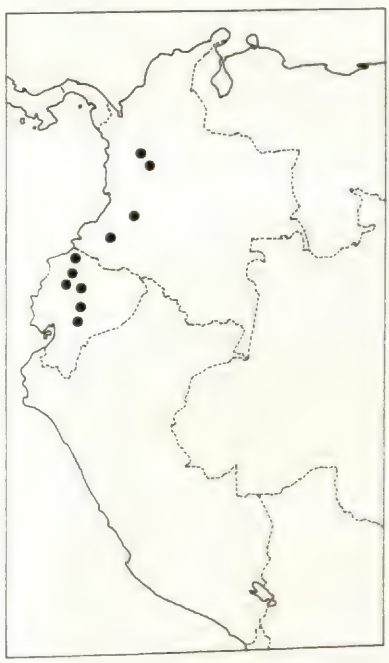
Syn.: *Masdevallia xanthina* var. *pallida* Woolward, Monogr. Genus *Masdevallia* t. 82, 1896.
Ety.: From the Latin *pallidus*, "pale," referring to the whitish color of the flower.

Syn.: *Masdevallia pallida* (Woolward) Luer, Selbyana 2: 377, 1978.

Syn.: *Masdevallia xanthina* Rchb.f. subsp. *pallida* (Woolward) Luer, Lindleyana 3: 64, 1988.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, coriaceous, 3-8 cm long including the petiole 1-3 cm long, the blade elliptical, obtuse to rounded at the apex, 1.5-2.5 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by a slender, erect to suberect peduncle 4-6 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 9-10 mm long; pedicel 9-18 mm long; ovary 5-7 mm long; **sepals** yellow, pale yellow, to white, with a dark purple spot at the base of the lateral sepals, microscopically pubescent to glabrous, the dorsal sepal erect, obovate, concave, 11-17 mm long, 8-11 mm wide, connate to the lateral sepals for 3 mm to form a shallow, widely spread, sepaline cup, the apex rounded, abruptly contracted into an erect, slender tail 2.5-4.5 cm long, the lateral sepals elliptical, oblique, 10-12 mm long, 8-9 mm wide, connate 3-4 mm, to form a small mentum behind a transverse fold below the column-foot, the apices obtuse, contracted into slender tails similar to that of the dorsal sepal; **petals** white, more or less oblong, 4.75-5 mm long, 1.75-2 mm wide above the base, the apex truncate, tridenticulate, the labellar margin with a thick, longitudinal, winglike callus, forming a thick, incurved process above the base; **lip** erect, white, often flecked with purple, elliptical-oblong, 4-5 mm long, 2.5-3 mm wide, the apex obtuse to rounded, with a dark purple, marginal callus, the base rounded, hinged beneath; **column** more or less greenish white, often marked with purple, semiterete, 3.5 mm long, the foot stout, with an incurved extension.

COLOMBIA: without collection data, cultivated Apr. 1880 by *Veitch 165* (Holotype: W). **Antioquia**: Río Chico near San Pedro, alt. 2000-2300 m, *F.C. Lehmann 4287* (K, LE); Santa Elena above Medellín, alt. 2000 m, 10 Nov. 1884, *F.C. Lehmann 4130* (G); without collection data, *Schmidtchen s.n.* (W); Sillon, cultivated by M. & O. Robledo at La Ceja, 21 Jan. 1978, *C. Luer 2314* (SEL). **Cauca**: La Ceja in Tuzá, alt. 1700-2200 m, *F.C. Lehmann 6090* (AMES, K). **Nariño**: Morasurco, north of Pasto, alt. 2400 m, collected by R. Escobar, cultivated at Colomborquídeas, 9 May 1985, *C. Luer 11312* (MO).
ECUADOR: **Carchi**: above Maldonado, alt. 2500 m, Mar. 1992, *S. Dalström 1939* (MO). **Imbabura**: epiphytic in wet forest between Carolina and Buenos Aires, alt. 1950 m, 17 Jan. 1987, *C. Luer, J. Luer, A. Hirtz et al. 12345* (MO); same area, collected by A. Hirtz & A. Andreetta, cultivated at Paute, 16 May 1988, *C. Luer 13374* (MO). **Napo**: epiphytic near El Chaco, alt. 1500 m, collected by A. Hirtz, cultivated in Quito, 26 Feb. 1978, *C. Luer 2777* (SEL); same area, 11 Aug. 1978, *C. Luer, J. Luer, A. Andreetta & A. Hirtz 3211* (SEL); same area, 5 Oct. 1984, *A. Hirtz & A. Andreetta 1949* (MO); same collection, cultivated at Paute, 16 May 1988, *C. Luer 13373* (MO). **Pastaza**: Río Zuñag north of Topo, alt. 2100 m, 26 Feb. 1990, *S. Dalström & L. Årnby 1417* (MO). **Pichincha**: west slopes above Penachu near Quito, alt. 2800 m, 4 Jan. 1880, *F.C. Lehmann 422* (W). **Morona-Santiago**: Valle del Upano, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13622* (MO).



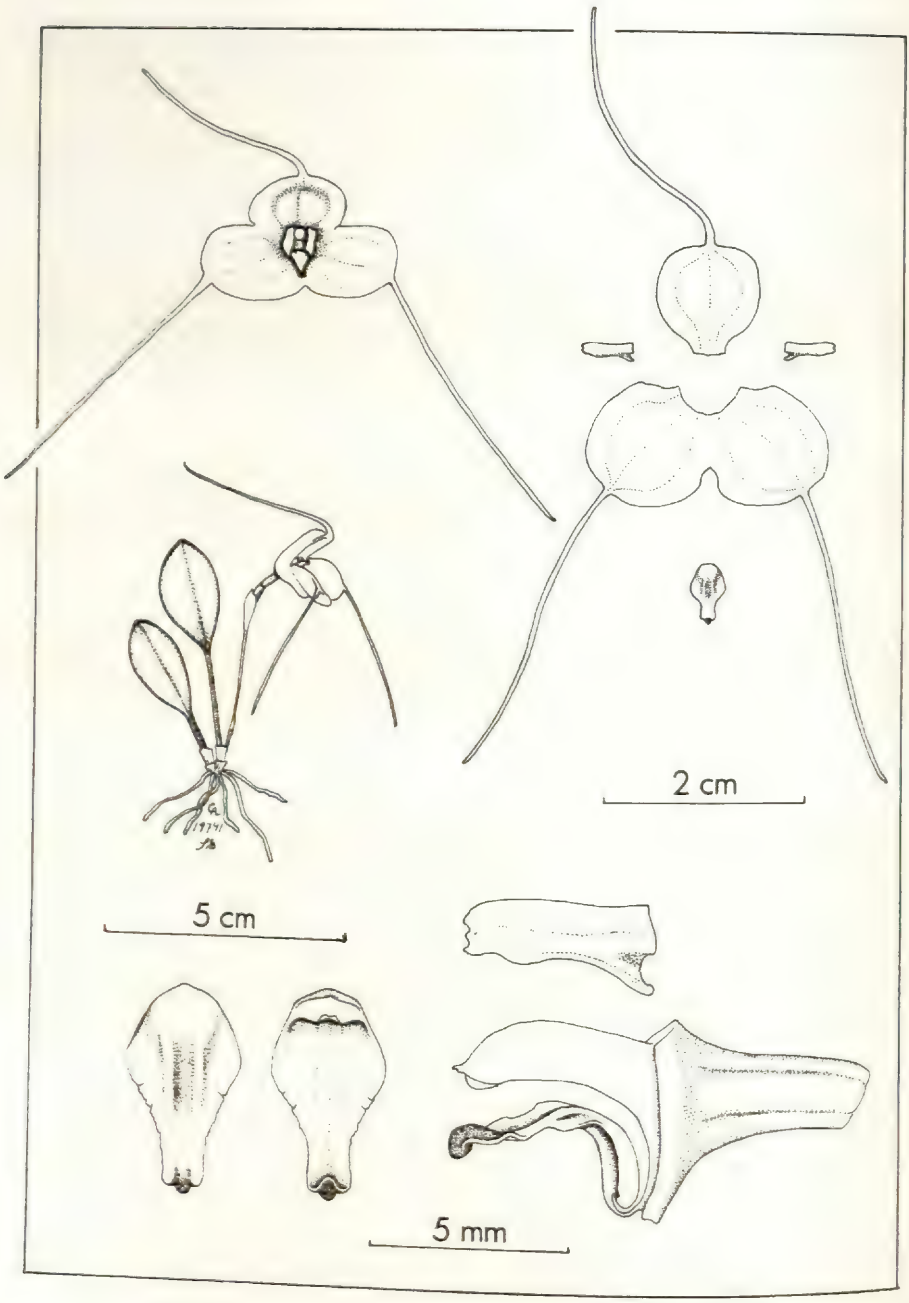


Plate 465. Masdevallia zamorensis

The first specimen of this species was imported without collection data from Colombia and cultivated by Messrs. Veitch at Chelsea, England. In his description of it as *M. xanthina*, Reichenbach noted the color to be yellow with a dark-violet patch at the base of the sepals. This pair of "eye-spots" is presumed to be a guide for the pollinator. Similar taxa without the eye-spots probably utilize other pollinators. In her monograph of the genus *Masdevallia* Florence Woolward recognized a white-flowered variation with eye-spots as var. *pallida*. The white variation occurs relatively frequently in Ecuador on both sides of the Andes.

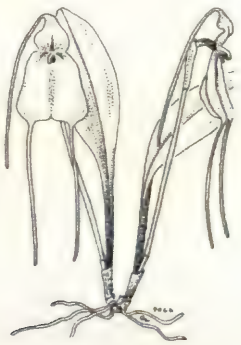
Similar taxa have been recognized at the specific level, and some have been reduced to variations to be included in a broad concept of a *Masdevallia xanthina*-complex. Many look-alike taxa defy segregation by the simple morphology employed here. Treating all in one "super-species" has been proposed. Differently shaped and differently colored variations are found in various geographical regions. Consul Lehmann, as quoted by Miss Woolward, was well aware of this. To try to name them all is impractical. To add to the folly of trying to separate them is the impossibility to decide which of the names to apply to many specimens represented in herbaria by poor fragments of crushed flowers. It is not even possible to differentiate between freshly pickled flowers after the colors are lost.

Those taxa with essentially white, usually larger flowers without an "eye-spot" at the base of the sepals (suggesting a different pollinator) are treated as *M. klabochiorum*. The taxon with orange flowers without an "eye-spot" are treated as *M. mandarina*; the Peruvian taxon with rose-colored flowers is treated as *M. cloesii*.

Many specimens are not cited in the distributions because it cannot be determined to which species they should be attributed. Those closely related taxa that vary significantly from the first *M. xanthina* include *M. apparitio, M. asterotricha, M. bottae, M. cloesii, M. cylix, M. discolor, M. iris, M. klabochiorum, M. mandarina, M. nivea, M. purpurella, M. sanctae-inesiae*, and *M. venatoria*.

SPECIES DESCRIBED IN *MASDEVALLIA* ATTRIBUTABLE TO SUBSECTION *OSCILLANTES*

M. albella Luer & Teague.....Plates 466, 467.
M. amoena Luer.....Plate 468.
M. andreettana Luer.....Plates 469, 470.
M. ariasii Luer.....Plate 471.
M. castor Luer & Cloes.....Plate 472.
M. catepheres Königer.....Plate 473.
M. citrinella Luer & Malo.....Plate 474.
M. cretata Luer.....Plate 475.
M. dalessandroi Luer.....Plates 476, 477.
M. ejiriana Luer & Portilla.....Plate 478.
M. formosa Luer & Cloes.....Plate 479.
M. josei Luer.....Plate 480.
M. manta Königer.....Plate 481.
M. microptera Luer & Würstle.....Plate 482.
M. nikoleana Luer & Portilla.....Plate 483.
M. ortalis Luer.....Plate 484.
M. persicina Luer.....Plate 485.
M. phasmatodes Königer.....Plate 486.
M. pollux Luer & Cloes.....Plates 487, 488.
M. pteroglossa Schltr.....Plate 489.
M. rhodehameliana Luer.....Plate 490.
M. rodolfoi (Braas) Luer.....Plate 491.
M. rodolfoi subsp. *ortalis* (Luer) Luer = **M. ortalis**
M. rubeola Luer & Vásquez.....Plate 492.
M. rubiginosa Königer.....Plates 493, 494.
M. sulphurella Königer.....Plate 495.
M. tricycla Luer.....Plate 496.
M. velox Königer = **M. dalessandroi**
M. wageneriana Lind. ex Lindl.....Plate 497.
M. wageneriana var. *colombiana* Braas = **M. pteroglossa**
M. wageneriana var. *ecuadorensis* Braas = **M. persicina**
M. wageneriana var. *rodolfoi* Braas = **M. rodolfoi**
M. Xwubbenii Luer.....Plate 498.
M. xerophila Lehm. & Kraenzl. = **M. pteroglossa**
M. zongoënsis Luer & Hirtz.....Plate 499.



Masdevallia zamorensis Luer & J.Portilla, Selbyana 22: 116, 2001.

Ety.: Named for the community of Zamora, near where the species was collected.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.5-0.8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3-4.5 cm long including the petiole 0.5-1.2 cm long, the blade elliptical, obtuse, 1.1-1.3 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 20-25 mm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 9 mm long; pedicel 9 long; ovary 4.5 mm long; **sepals** light yellow, lightly suffused with brown toward the base, glabrous, with the edges cellular-erose, the dorsal sepal suborbicular-obovate, concave, 11 mm long, 10 mm wide, connate to the lateral sepals for 3 mm to form a shallow, conical, sepaline cup, the apex rounded, abruptly contracted into a slender, yellow tail 32 mm long, the lateral sepals suborbicular, 12 mm long, 11 mm wide, connate 5 mm to form a transverse lamina, the apices rounded, abruptly contracted into a slender tail 30 mm long, similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.75 mm wide, the apex truncate, shallowly tridentate, the labellar margin with a longitudinal callus, terminating in a descending, narrowly obtuse process just above the base; **lip** light tan, obovate, narrowed above the middle, 5.5 mm long, 3 mm wide, with the margins thin, minutely erose and undulating, broadly rounded below the middle, the apex narrowly truncate, with a black, marginal callus, the disc shallowly sulcate between a pair of low calli on the middle third, the base rounded, hinged beneath; **column** whiite with purple margins, semiterete, 5 mm long, the foot ca 2 mm long, with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: near Zamora, alt. ca. 1000 m, flowered in cultivation at Ecuagenera, Gualaceo, Ecuador, 5 Mar. 2001, *C. Luer 19741* (Holotype: MO).

This species from southern Ecuador is another of the numerous species closely allied to *M. xanthina*. It is characterized by gaping, rounded, light yellow sepals, lightly suffused with brown basally, and abrupt, slender tails. The marginal callus of the petals terminates in a narrowly obtuse process. The lip is obovate and narrowed above the middle to a narrow apex with a black callus.

14 Petals irregular with a triangular process near the middle and a smaller one at the base ..... *M. microptera*
14' Petals oblong with a triangular process above the base 15

15 Lip with short, obtuse, lateral lobes ..... *M. albella*
15' Lip with broad, uncinate, retrorse, lateral lobes ..... *M. manta*

16 Dorsal sepal erect, parallel to synsepal 17
16' Dorsal sepal anteflexed or cucullate 19

17 Sepals with tails less than 1 cm long ..... *M. rodolfoi*
17' Sepals with tails more than 1.5 cm long 18

18 Sepals yellow, suffused with red; lip with a pair of lobules anterior to the bulbous base ..... *M. catepheres*
18' Sepals orange, suffused with red; lip smooth without lobules anterior to the bulbous base ..... *M. nikoleana*

19 Sepals with tails more than 6 cm long 20
19' Sepals with tails less than 4 cm long 21

20 Leaves 2-3 cm wide; dorsal sepal ca. 2 cm wide ..... *M. rhodehameliana*
20' Leaves 1-1.5 cm wide; dorsal sepal ca. 1 cm wide ..... *M. zongoënsis*

21 Synsepal remarkably transversely expanded; petals with 1 descending process at the base 22
21' Synsepal not remarkably expanded; petals with descending processes 24

22 Lip with wings broadly triangular, erose ..... *M. ejiriana*
22' Lip with wings small, inconspicuous 23

23 Lip with wings vestigial, not protruding ..... *M. andreettana*
23' Lip with wings small, protruding, subtruncate ..... *M. pollux*

24 Petals with 2 erect, oblong processes ..... *M. sulphurella*
24' Petals with rounded to acute processes 25

25 Petals with a low, winged, marginal callus 26
25' Petals with a marginal wing and a retrorse basal processes 27

26 Lip with an acute, triangular, retrorse wing ..... *M. pteroglossa*
26' Lip with a broadly rounded wing above the middle ..... *M. wageneriana*

27 Dorsal sepal less than one-third as wide as the synsepal ..... *M. citrinella*
27' Dorsal sepal more than half as wide as the synsepal 28

28 Lip with broad wings below the middle ..... *M. ortalis*
28' Lip with narrow wings above the middle ..... *M. cretata*

MASDEVALLIA SUBSECTION OSCILLANTES

Masdevallia subgenus **Masdevallia** subsection **Oscillantes** Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 32, 1986.

Type: *Masdevallia wageneriana* Lind. ex Lindl., Paxton's Fl. Gard. 3: 74, 1852.

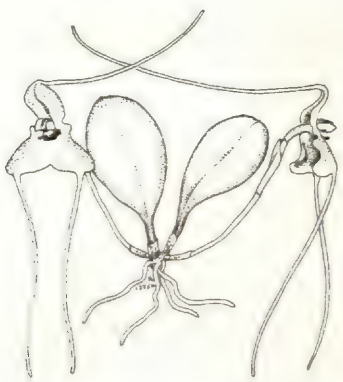
Ety.: From the Latin *oscillans*, "oscillating," referring to the thinly hinged, oscillating lip.

This subsection is very closely allied to subsection *Caudatae*. In habit, they are basically similar. Although connate above the middle into a short tube in only two species, the sepals of subsection *Oscillantes* are most often less deeply connate and expanded as seen in subsection *Caudatae* with the column flanked by petals more or less exposed in the center of the flower. As in the other subsections, the petals are cartilaginous and variously callous along the labellar margin.

The significant difference is the lip with wing-like, lateral margins often modified into lobes, and a base that is delicately hinged or balanced by a thin, flat, strap-like extension from the column-foot. The slightest motion or a breeze causes the lip to oscillate. In some species the flowers are nutant, or face downward, so that the lip dangles loosely from the column-foot. In some species of subsection *Caudatae* and *Alaticaules* (e.g., *M. pinocchio*) the lip may also oscillate.

The lip is thickened and convex below the middle, and concave beneath. It is into this cavity that the slender, delicate extension of the column-foot is attached. The sides of the lip are either dilated and thin, or more or less involute, with the margins variously developed into wing-like, lateral lobes. There is usually a constriction below the tip. In the lateral view, the lip appears sigmoid as the narrowed apical portion descends from the higher, convex body of the lip.

In some species the lip is intermediate between subsection *Oscillantes* and subsection *Caudatae*, and assigning these species to either of the two subsections is not certain. Twenty-five species are recognized in subsection *Oscillantes*. Keys of both subsections should be consulted if a species is not found in one. Species with intermediate lips included here in subsection *Oscillantes* are *M. amoena, M. ariasii, M. dalessandroi,* and *M. josei.*



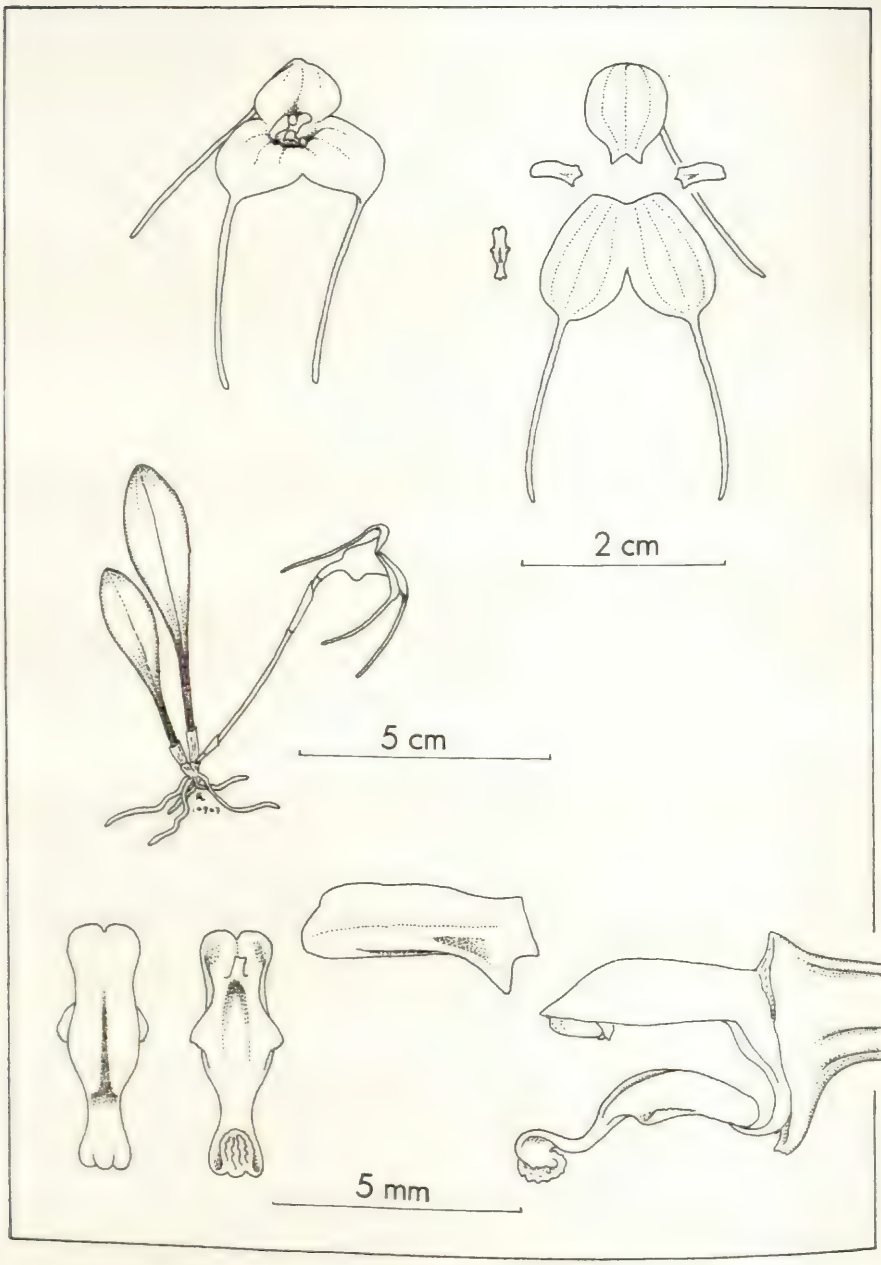


Plate 467. **Masdevallia albella**

KEY TO THE SPECIES OF SUBSECTION *OSCILLANTES*

1 Lip with sides obtuse to broadly rounded (aff. subsect. *Caudatae*).....2
1' Lip with sides developed into wing-like lobes.....8

2 Lip widest above the middle.....3
2' Lip widest near or below the middle.....5

3 Flowers orange, unspotted.....*M. formosa*
3' Flowers yellow, speckled with purple.....4

4 Petals with a triangular, basal process; lip broadly contracted below the apex.....*M. josei*
4' Petals with a narrowly linear, basal process; lip narrowly contracted below the apex.....*M.* X*wubbenii*

5 Synsepal white with lavender papillae; lip with an oblong, basal process.....*M. amoena*
5' Synsepal light yellow to light peach, not papillose.....6

6 Petals with a large, thick, basal process.....*M. tricycla*
6' Petals with a minute, acute, basal process.....7

7 Dorsal sepal connate 7 mm to the lateral sepals, tails less than 3 cm long.....*M. ariasii*
7' Dorsal sepal connate 3 mm to the lateral sepals, tails more than 4 cm long.....*M. dalessandroi*

8 Dorsal sepal connate above the middle to the lateral sepals to form a cylindrical, sepaline tube.....9
8' Dorsal sepal connate below the middle to the lateral sepals to form a gaping cup or broad tube.....10

9 Lip narrowly oblong with minute lateral lobes, not dilated at the apex.....*M. persicina*
9' Lip oblong-pandurate with protruding lateral lobes, dilated at the apex...*M. castor*

10 Sepals diffusely spotted with dark purple-brown.....*M. rubeola*
10' Sepals not diffusely spotted with dark purple-brown.....18

11 Dorsal sepal convex, more or less erect.....12
11' Dorsal sepal concave, erect, or anteflexed.....16

12 Sepals minutely papillose-verrucose.....13
12' Sepals not minutely papillose-verrucose.....14

13 Sepals yellow-white, tails more than 3 cm long.....*M. phasmatodes*
13' Sepals red-purple, tails less than 1.5 cm long.....*M. rubiginosa*

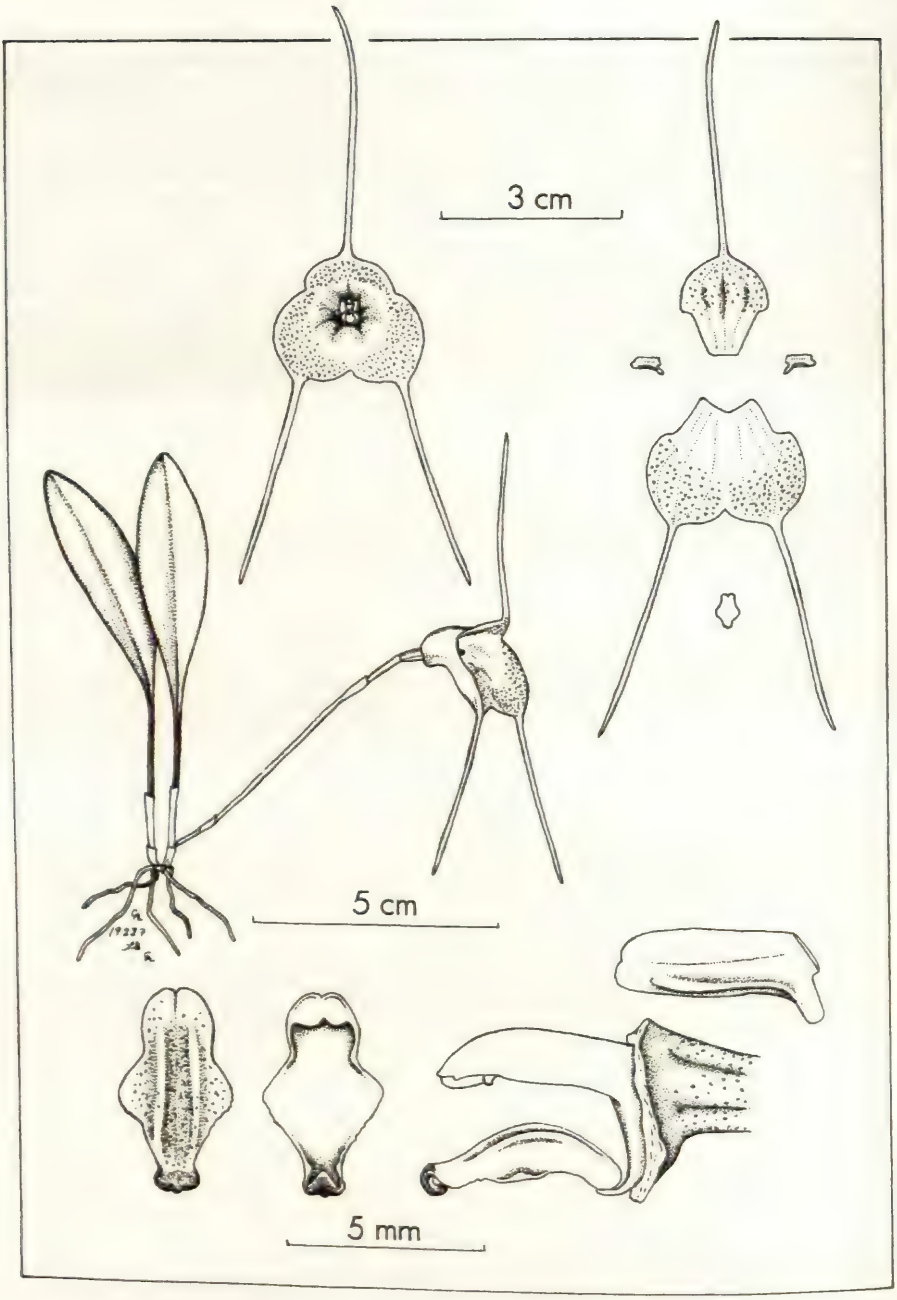
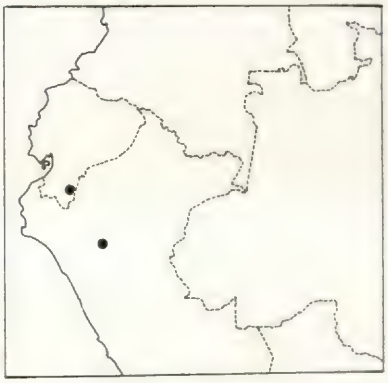


Plate 468. Masdevallia amoena

Masdevallia albella Luer & Teague, Lindleyana 6: 84, 1991.

Ety.: From the Latin *albella*, "something little and white," referring to the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 3-5 cm long including a petiole 1-1.5 cm long, the blade narrowly obovate, subacute, 1.1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** a solitary, white flower borne by a slender, suberect peduncle 3.5-4 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 9 mm long; pedicel 10-11 mm long; ovary 4-5 mm long; **sepals** white, glabrous, the dorsal sepal suborbicular, 9 mm long, 7.5 mm wide, connate to the lateral sepals for 3-4 mm to form a short, cylindrical tube, the apex rounded, abruptly contracted into an acutely reflexed, slender tail 25 mm long, the lateral sepals elliptical-oblong, 12 mm long, 8 mm wide, connate 7 mm, the free portions rounded, abruptly contracted into slender, descending tails 19 mm long; **petals** white, oblong, 4.5 mm long, 1.5 mm wide, the apex obliquely rounded, the labellar margin with a longitudinal callus ending in a broad, triangular process above the base; **lip** white with the apex dark purple, oblong, 5 mm long, 1.5 mm wide, the sides revolute with small, obtusely triangular lobules near the middle, the apex thickened, verrucose, rounded, acutely recurved, with a midline, verrucose callus, the disc shallowly channeled, the base cordate, loosely hinged beneath; **column** white, semiterete, 4 mm long, the foot 3 mm long, with a slender, incurved extension.



ECUADOR: **Morona-Santiago**: Cordillera del Condor, epiphytic in forest east of Guismé, alt. 1750 m, 21 May 1988, collected by W. Teague, cultivated in San Francisco, Oct. 1990, *C. Luer 14907* (Holotype: MO).

PERU: **San Martín**: Near Moyabamba, alt. 900 m, collected by R. Villena, May 1992, cultivated by *I. Rolando 3* (MO).

This species seems most closely allied to *M. persicina*, but the white flowers with spreading, rounded lateral sepals resemble those of *M. andreettana*. From both these species, *M. albella* is distinguished by the narrowly obovate leaves, and the triangular process at the base of the petal instead of a narrow, fingerlike process. The lip is similar to that of *M. persicina*, differing from that of *M. andreettana* by the tiny, lateral lobes.

Only one plant of this species was collected without flowers by Walter Teague in the Cordillera del Condor in 1988, but it has subsequently been discovered in neighboring Peru.

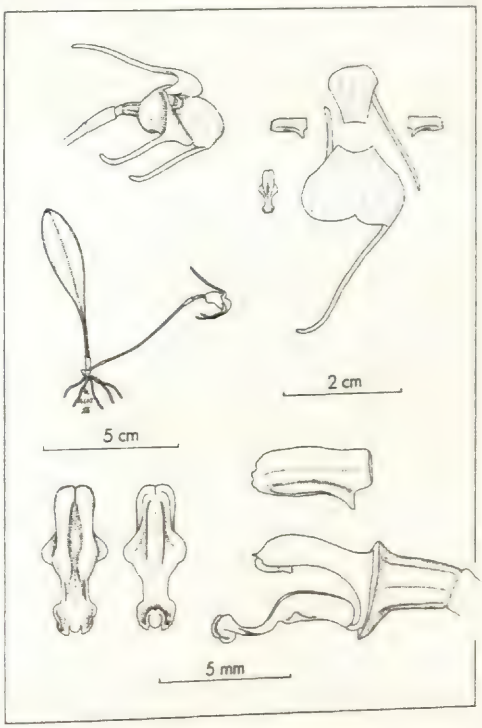


Plate 466. Masdevallia albella

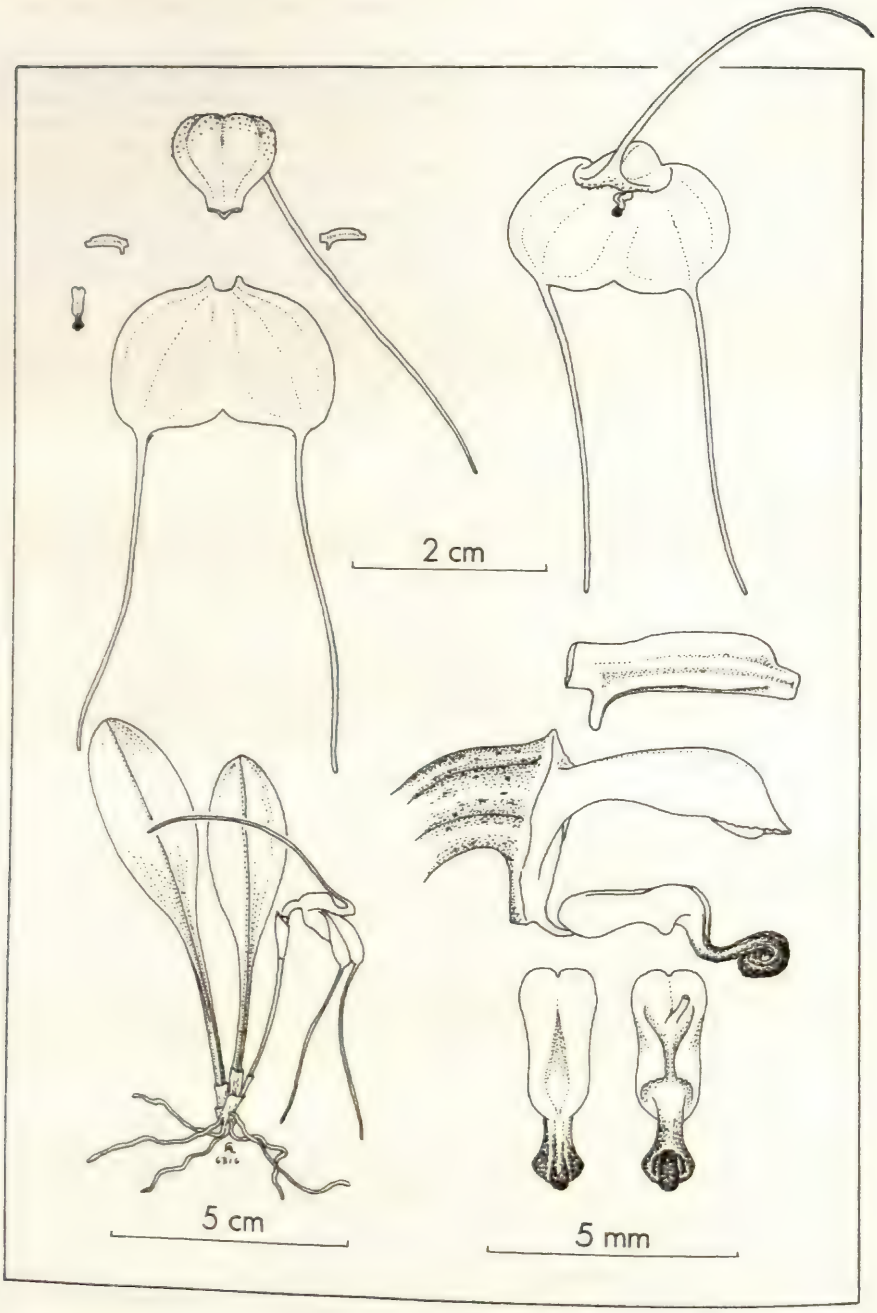


Plate 470. Masdevallia andreettana

Masdevallia amoena Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 148, 1999.

Ety.: From the Greek *amoenus*, "delightful, lovely," referring to qualities of the species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 5-8 cm long including the 2-3 cm long, blackish petiole, the blade elliptical, acute, 1.5-2.3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an ascending to horizontal, slender peduncle 4-6 cm long, from low on the ramicaul; floral bract 8 mm long; pedicel 15 mm long; ovary 5 mm long; **sepals** white, yellow basally, glabrous externally, distantly purple cellular-papillose within, the dorsal sepal obovate, 16 mm long, 13 mm wide, connate to the lateral sepals for 10 mm to form a gaping cup, the apex rounded, abruptly contracted into an erect, slender, yellow-green tail 4 cm long, the lateral sepals connate 15 mm into a broadly expanded, transversely obovate lamina 20 mm long, 25 mm wide, the broadly obtuse apices abruptly contracted into slender, descending, yellow-green tails 4 cm long; **petals** yellow, oblong, 5 mm long, 1.75 mm wide, the apex subtruncate, obscurely bilobed, with a wing-like, longitudinal callus along the lower margin ending in a descending, cylindrical, 1 mm long process at the base; **lip** tan, diffusely dotted with brown, black at the apex, more or less oblong, 5.25 mm long, 2.75 mm wide, the margins thin and obtusely dilated near the middle, with the edges, minutely erose, narrowed below the acutely decurved tip, the disc broadly and shallowly concave between a pair of low, longitudinal calli, the base thickened, subcordate, flexibly hinged beneath by a thin strap; **column** yellow, semiterete, 5 mm long, the foot with extension 3 mm long.

ECUADOR: Without collection data, purchased from José Portilla, collector, flowered in cultivation by Ton Sijm at Venhuizen, The Netherlands, 14 Aug. 1999, *T. Sijm 15898* (Holotype: MO), C. Luer illustr. 19227; without collection data, purchased from José Portilla, flowered in cultivation at Hasselt, Belgium, by *P. Cloes s.n.* (MO).

Unfortunately, this attractive species is without collection data. Among the members of subsection *Oscillantes*, it is distinguished by acute, petiolate leaves, and a suberect to horizontal, colorful flower that is large for the subsection. The sepals are white, and yellow at the base. Within, the sepals are diffusely studded with lavender, papillose cells. The obtuse apices are produced into slender, yellow-green tails. The petals are yellow, oblong and longitudinally winged with a finger-like callus at the base. The margins of the lip are thin and dilated into obtuse wings. The tip is black and recurved.

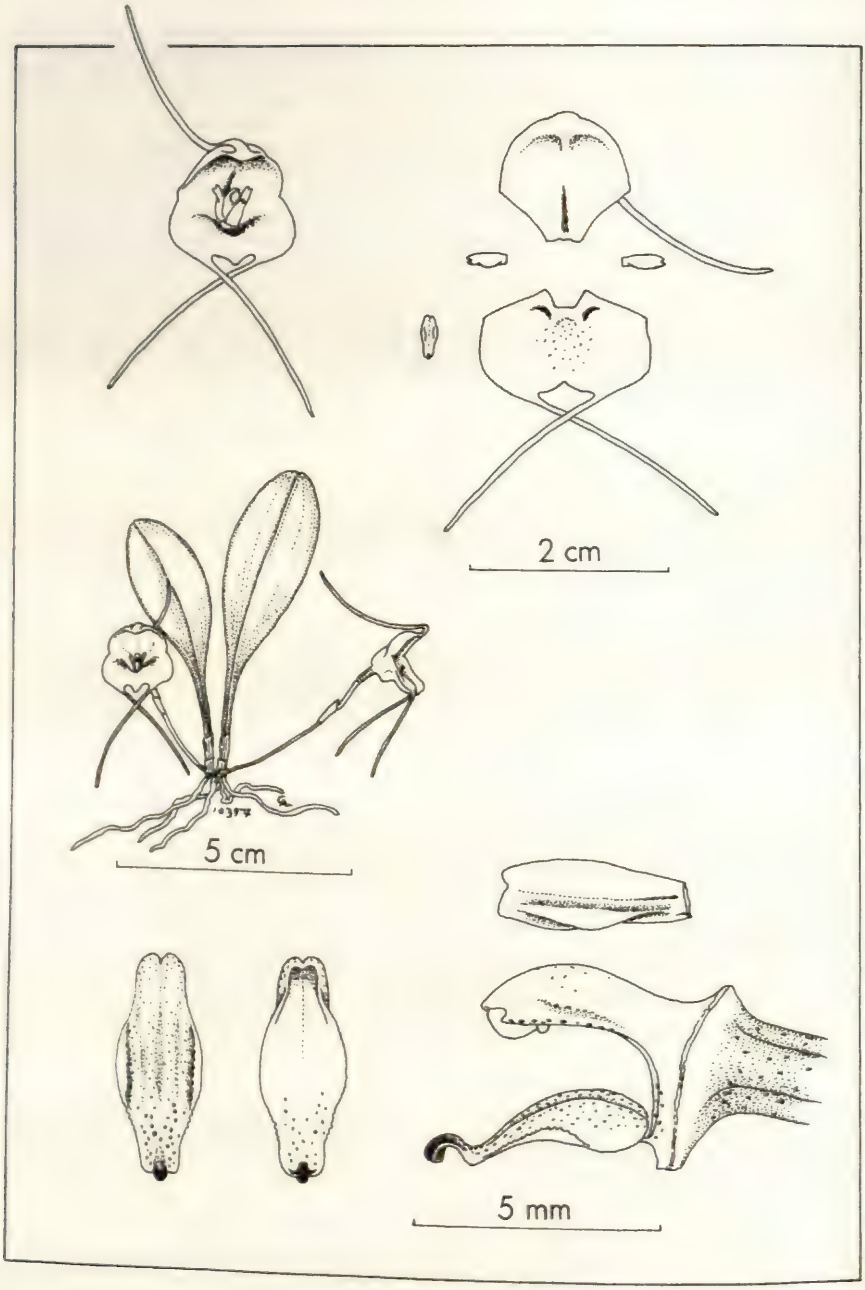


Plate 471. Masdevallia ariasii

Masdevallia andreettana Luer, Selbyana 5: 390, 1981, as *M. andreettaeana*.

Ety.: Named in honor of Padre Angel Andreetta of Cuenca, Ecuador, who has made numerous contributions to the orchid flora of Ecuador.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 6-8.5 cm long including the 2-3.5 cm long, blackish petiole, the blade elliptical, obtuse, 1.6-2.2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect to ascending, slender peduncle 3-3.5 cm long, from low on the ramicaul; floral bract 6-8 mm long; pedicel 7 mm long; ovary deep purple, 4-5 mm long; **sepals** snow white, glabrous, the dorsal sepal microscopically papillose within above the middle, the blade anteflexed, 13 mm long, 11 mm wide, connate to the lateral sepals for 4 mm to form a shallow cup, the rounded apex reflexed, abruptly contracted into an acutely reflexed, slender, white tail 4.5 cm long, the lateral sepals connate 12 mm into a broadly expanded, transversely obovate, flat lamina 15 mm long, 24 mm wide, the broadly obtuse apices abruptly contracted into slender, descending white tails 3.5 cm long; **petals** white, more or less oblong, 4.75 mm long, 1.25 mm wide, the apex subtruncate, with a low, longitudinal callus along the lower margin ending in a deflexed, cylindrical, 0.75 mm long process a short distance above the base; **lip** white, suffused with purple above the middle, more or less oblong-subpandurate, sigmoid from the lateral view, 4.5 mm long, 1.5 mm wide, the margins revolute with obtuse, minutely serrulate angles near the middle beneath, narrowed above the middle, the apical portion geniculate, "U-shaped" from the lateral view, the tip acutely revolute, the base thickened, cordate, flexibly hinged by a thin strap below, 1 mm from the basal margin; **column** white, semiterete, 4.5 mm long, with a thick foot 2 mm long.

ECUADOR: **Morona-Santiago**: epiphytic in forest above Bomboiza, Río Chumpias, alt. 1600-1800 m, Oct. 1980, collected by Mario Portilla, cultivated in Cuenca, 5 May 1980, *A. Andreetta 1777* (SEL), C. Luer illustr. 6316; epiphytic in forest north of Gualaquiza, alt. 1600 m, 17 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13421* (MO). **Zamora-Chinchipe**: west of Zumba, alt. 1800 m, 25 Jan. 1989, *S. Dalström & T. Höijer 1200* (MO).
PERU: **Amazonas**: near Pomacochas, alt. 2100 m, July 1991, *P. Cloes, J. Schoonen & M. Arias 85/2922* (MO), C. Luer illustr. 17025.

This species, first discovered by Father Andreetta in southeastern Ecuador, also occurs in northeastern Peru. It is easily recognized by the proportionately large, solitary, snow white flower with a deflexed dorsal sepal with an acutely reflexed tail behind the broadly expanded lamina of the synsepal. The petals have a slender, obtuse tooth above the base. The margins of the lip are recurved.

The inner surfaces of the sepals of Ecuadorian plants are minutely cellular-papillose on their inner surfaces. The inner sepaline surfaces of Peruvian plants are visibly and densely pubescent.

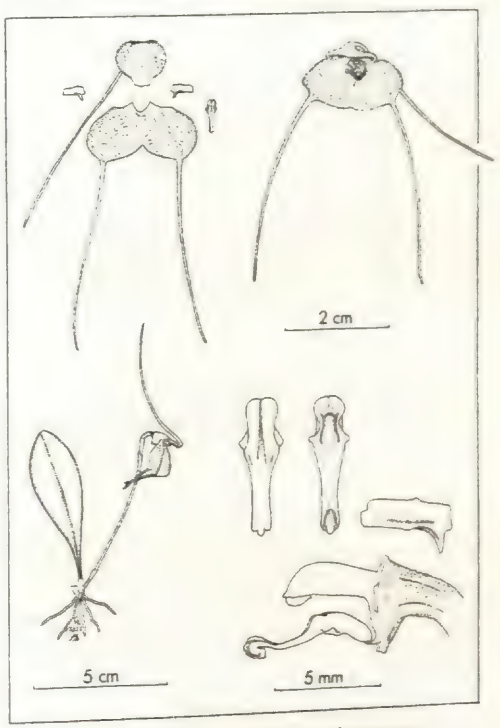


Plate 469. Masdevallia andreettana

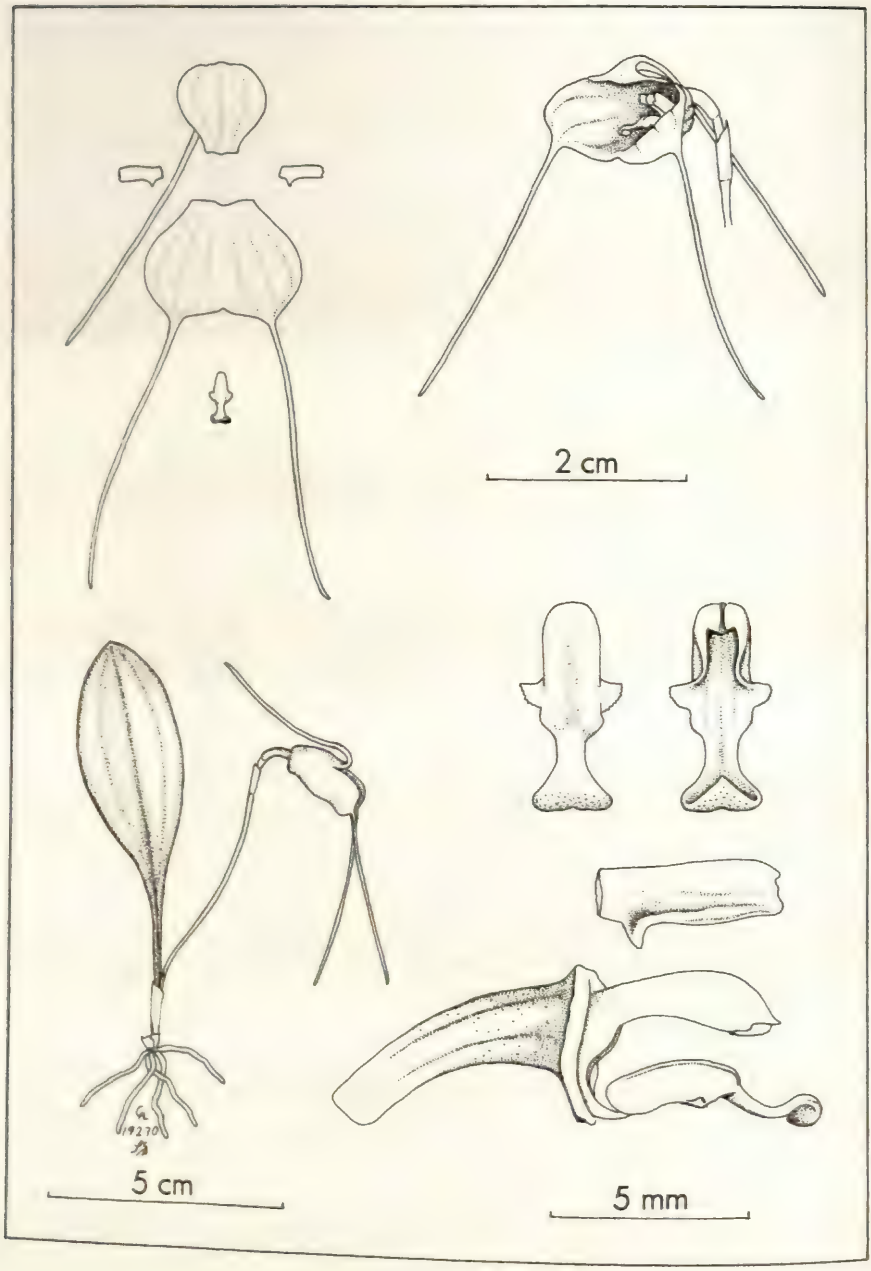


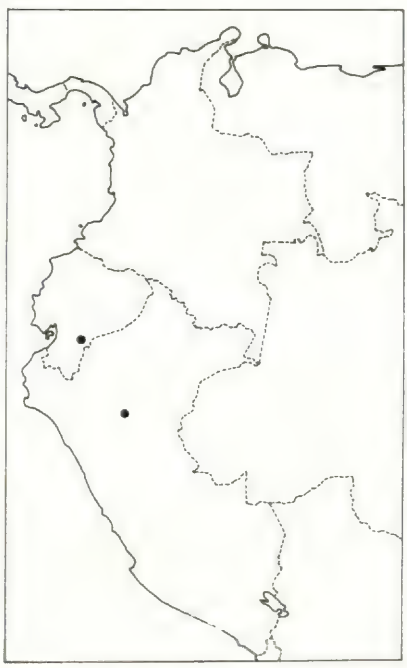
Plate 472. Masdevallia castor

Masdevallia ariasii Luer, Phytologia 57: 60, 1985.

Ety.: Named in honor of Sr. Manuel Arias Silva of Lima, Peru, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 5-10 mm long, enclosed by 2-3 short, tubular sheaths. **Leaf** erect, coriaceous, 3-6 cm long including the petiole 1-1.5 cm long, the blade oblong, obtuse to rounded, 1.4-2.2 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne by a suberect, slender peduncle 2-3 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 6-8 mm long; pedicel 10-12 mm long; ovary 4 mm long; **sepals** pale yellow, microscopically pubescent internally, the dorsal sepal broadly obovate, concave, 13 mm long, 13 mm wide, connate to the lateral sepals for 7 mm into a broad, gaping, sepaline cup, the rounded apex abruptly contracted into a slender, reflexed, yellow-green tail ca. 25 mm long, the lateral sepals broadly ovate, oblique, with a red spot near the base, connate 8 mm into a transverse lamina 10 mm long, 17 mm wide, the rounded apices contracted into slender tails ca. 21 mm long; **petals** yellow-white, oblong, 4 mm long, 1.5 mm wide, with a longitudinal, winglike callus above the labellar margin, the apex truncate-retuse, with an inconspicuous, small, obtuse process at the base; **lip** cream, dotted with purple, oblong-elliptical, 4.5 mm long, 2 mm wide, the lateral margins slightly dilated, membranous, minutely denticulate, the apex narrowly obtuse with a dark purple callus, the base subcordate, convex with revolute margins, concave beneath, inflexibly connected within to the column-foot; **column** white, lightly marked with rose, semiterete, 4 mm long, the foot thick, 2 mm long, with a slender, incurved extension.

PERU: **San Martín**: epiphytic in forest between Tarapoto and Moyobamba, alt. 1000 m, May 1982, cultivated by W. & H. Königer in Munich, Germany, 8 Aug. 1984, *M. Arias A-142* (Holotype: MO; Isotypes: K, M, SEL, USM, W, Herb. H. Königer), C. Luer illustr. 10397; Moyobamba, Zepelacio, alt. 900 m, collected by R. Vellena, 9 Dec. 1990, *D. Bennett 4853* (MO).
ECUADOR: **Morona-Santiago**: epiphytic in forest above Sucua, alt. 1000 m, collected by A. Andreetta, cultivated at Paute, March 1990, *S. Dalström 1475* (MO), C. Luer illustr. 14823.



This small species is closely allied to *M. wageneriana* of coastal Venezuela, from which it is distinguished by the broader dorsal sepal that creates a suborbicular flower, and by the lip which lacks lateral wings. Instead of the attachment to the column-foot being loosely swiveled as in the other members of subsection *Oscillantes*, the lip is more or less immobile, held firmly by a short extension of the column-foot.

Masdevallia ariasii was first collected in relatively lowland, Amazonian Peru at 1000 meters above sea level by Manuel Arias in 1982. It was discovered at a similar altitude in southeastern Ecuador by Padre Angel Andreetta in 1989.

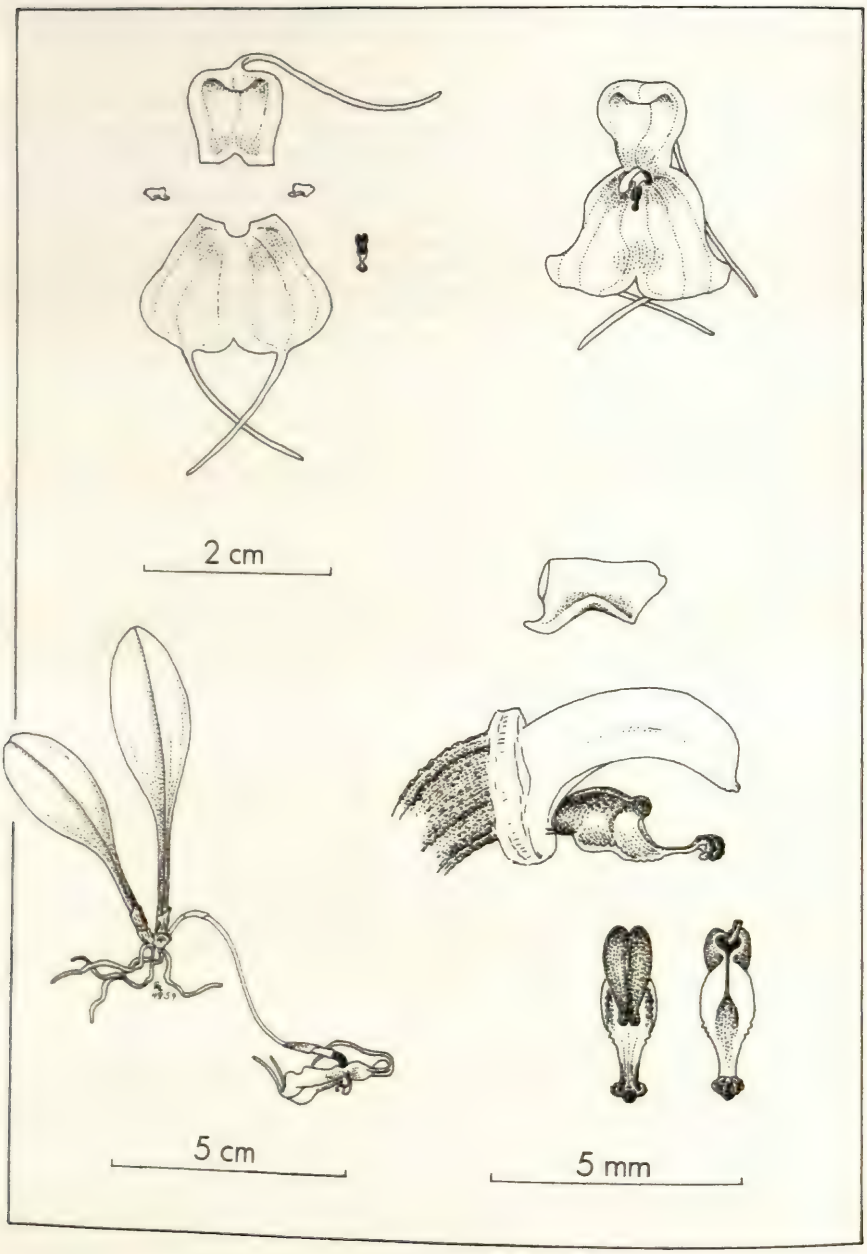


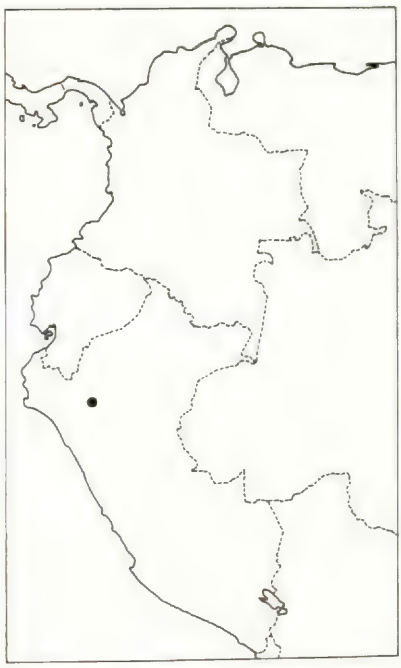
Plate 473. Masdevallia catepheres

Masdevallia castor Luer & Cloes, Selbyana 22: 112, 2001.

Ety.: Named for Castor, one of the twin stars, in turn named for one of the sons of Leda.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 5.5-7 cm long including the 1.5-2 cm long, blackish petiole, the blade elliptical, obtuse, 2-2.3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect to ascending, slender peduncle 6 cm long, from low on the ramicaul; floral bract 8 mm long; pedicel 10 mm long; ovary 6 mm long; **sepals** creamy white, yellow toward the base, glabrous to cellular-glandular, the dorsal sepal obovate, obtuse, anteflexed, 10 mm long, 10 mm wide, connate to the lateral sepals for 7 mm to form a tube, the rounded apex reflexed, abruptly contracted into an acutely reflexed, slender, white tail 4.5 cm long, the lateral sepals connate 11 mm into a broadly expanded, transversely obovate, lamina 12 mm long, 18 mm wide, the broadly obtuse apices abruptly contracted into slender, descending white tails 3 cm long; **petals** light yellow, oblong, 5 mm long, 1.75 mm wide, the apex truncate, obscurely trilobulate, with a low, longitudinal callus along the lower margin ending in a short, triangular process a short distance above the base; **lip** yellow, suffused with purple below the middle, oblong-subpandurate, subsigmoid from the lateral view, 5.5 mm long, 1.5 mm wide, 2 mm wide at the apex, with minutely serrulate wings near the middle beneath, narrowed above the middle, the apex dark red, dilated, with the obtuse tip acutely revolute, the base thickened, cordate, flexibly hinged by a thin strap below, 1 mm from the basal margin; **column** semiterete, 4.5 mm long, with a thick foot 2 mm long.

PERU: **Amazonas**: between Lacallate and Pomacochas, alt. 2200 m, July 1998, *P. Cloes & M. Cloes 990913* (Holotype: MO), C. Luer illustr. 19270.



The lobes of the lip of *M. persicina* are vestigial.

This species and *M. pollux* found in northern Peru by Patrick and Martine Cloes are superficially similar, hence the two were named for the mythological twins Castor and Pollux. However, *M. castor* is more closely related to Ecuadorian *M. persicina*. Both are distinguished by the dorsal sepal being connate to the synsepal for over half its length. The sepals of *M. castor* are pale cream in color, while those of *M. persicina* are yellow and suffused with rose to impart the color of peach. The lateral sepals of both species are deeply connate into a broad synsepal when expanded. The petals are also similar, being oblong with a descending tooth above the base. The lip of *M. castor* differs with a broadly dilated apex, and small, triangular, lateral lobes that protrude beyond the margins of the lip.

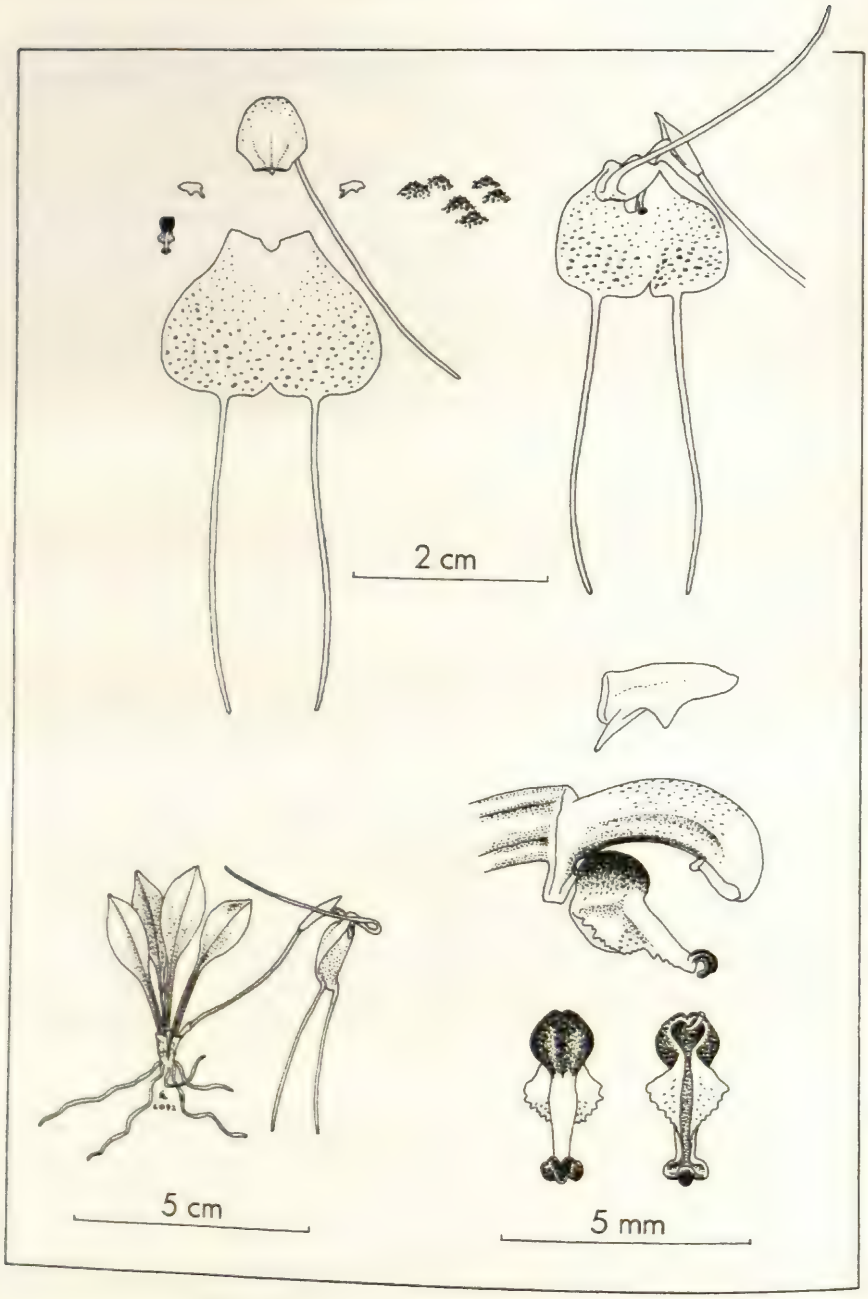


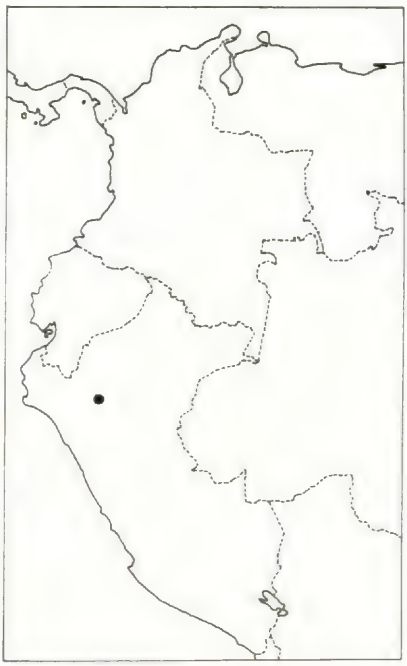
Plate 474. Masdevallia citrinella

Masdevallia catepheres Königer, Die Orchidee 31: 176, 1980, as *catapheres*; emend. 36: 87, 1985.

Ety.: From the Greek *katephoro-*, "bowing," in allusion to the nodding position of the flower.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-1.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-6.5 cm long including the petiole ca. 1.5 cm long, the blade elliptical, obtuse, 1.5-2 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower, borne by a slender, more or less horizontal peduncle, 3-3.5 cm long, bearing the flower facing downward, with a bract near the base, from low on the ramicaul; floral bract tubular, 6-7 mm long; pedicel 8-10 mm long; ovary dark purple, minutely subverrucose, 5 mm long; **sepals** yellow, suffused with red below the middle, glabrous externally, cellular-glandular within, the dorsal sepal obovate-subquadrate, concave above the middle, convex below the middle, 10 mm long, 10 mm wide, connate to the lateral sepals for 3 mm to form a shallow, widely spread, sepaline cup, the apex transverse, contracted into a slender, reflexed, yellow tail 2-2.5 cm long, the lateral sepals connate 11 mm to form a transversely obovate lamina, 15 mm long, 21 mm wide, the apices transverse, abruptly contracted into slender, reflexed tails ca. 16 mm long, similar to that of the dorsal sepal; **petals** light yellow, irregularly oblong, 2.5 mm long, 1 mm wide, 1.5 mm wide above the base, the apex obtuse, obscurely bilobulate, the labellar margin with a marginal callus with an obtuse angle in the distal third, ending in an acute, retrorse process at the base; **lip** dark purple, irregularly oblong, 3.5. mm long, 1 mm wide, narrowed above the middle to dilated, acutely reflexed tip with a midline callus, the margins thin and minutely erose in the middle third, curving inward in the basal third below a tall callus on the disc that is bilobed anteriorly, rounded, convex filling the basal third, deeply concave below, delicately hinged below; **column** pink, semiterete, lightly arcuate, 4.5 mm long, the foot thick, with a minute, slender extension.

PERU: **Amazonas**: Prov. of Bongará, forest between Chachapoyas and Mendoza, alt. 2300 m, Aug. 1978, *B. Würstle, J. Meza T., H. & W. Königer W 7a* (Holotype: SEL; Isotypes: K, M); same collection, cultivated by W. Königer in Munich, Germany, Nov. 1978, *C. Luer 4859* (SEL).



This species is rare and endemic in the forests of northern Peru. It is characterized by the medium-sized habit with petiolate leaves and a medium-sized, widely spread flower that is held facing downward on a more or less horizontal peduncle. The sepals are yellow and suffused with red below the middle and with slender, acutely reflexed tails. The tails of the lateral sepals often cross in the natural position. The small, complicated lip stands erect in the center of the flower. The basal half is occupied by a tall, bilobed callus that is deeply concave from below.

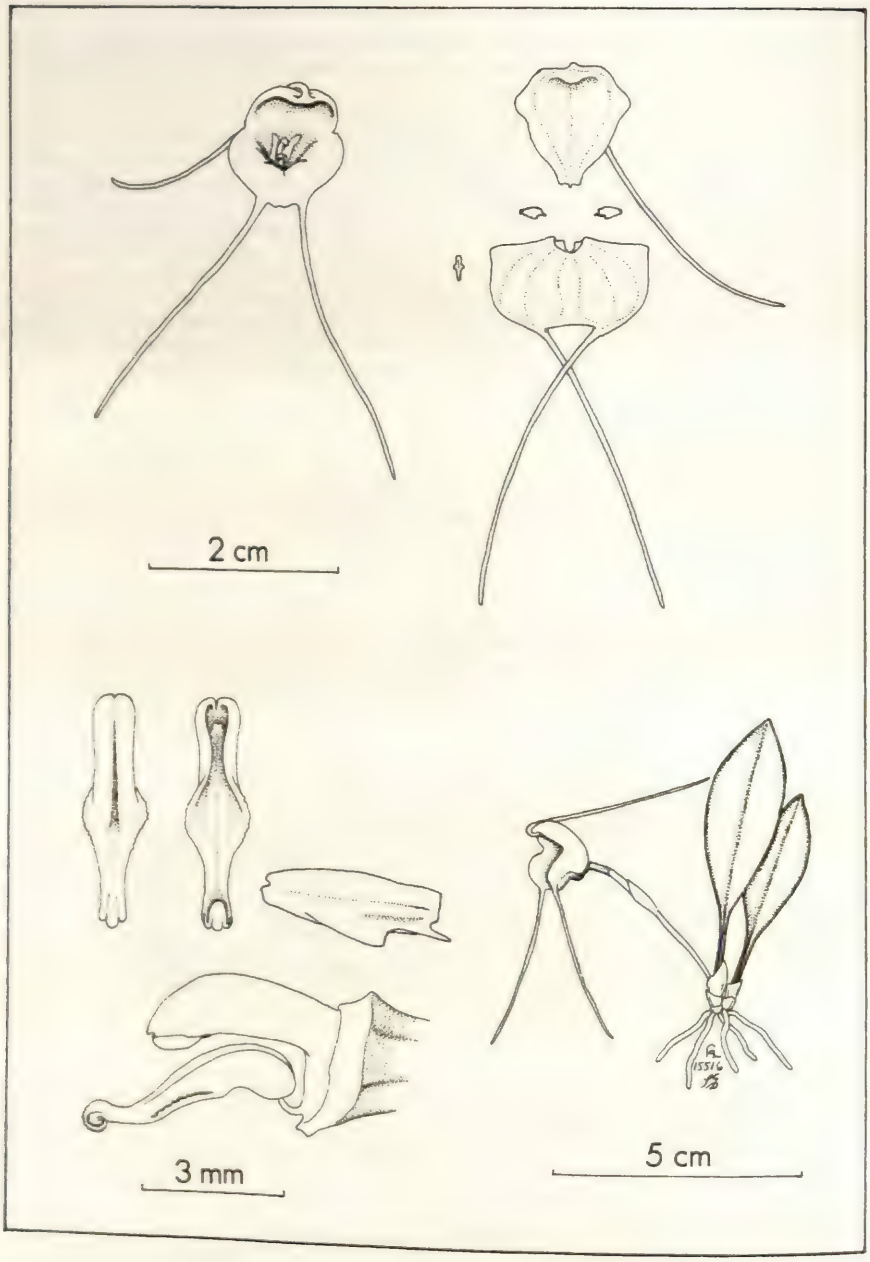


Plate 475. Masdevallia cretata

Masdevallia citrinella Luer & Malo, Selbyana 5: 392, 1981.

Ety.: From the Latin *citrinellus*, "diminutive of lemon yellow," referring to the color of the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, 1-1.5 cm long, concealed by 2-3 thin, white sheaths. **Leaf** erect, coriaceous, long-petiolate, 2.5-5 cm long including the petiole 1-2 cm long, the blade elliptical, acute, 1-1.5 cm wide, cuneate below into the petiolate base. **Inflorescence** a solitary flower borne by a slender, erect to ascending or more or less horizontal peduncle 3-8 cm long, from low on the ramicaul; floral bract thin, tubular, 9 mm long, enclosing the 5 mm long pedicel; ovary 4 mm long; **sepals** lemon yellow, diffusely covered within by numerous, minute, irregularly raised patches of brown cells appearing as tiny spots, the tails green, the dorsal sepal anteflexed, carinate, broadly ovate, 8 mm long, 7 mm wide, connate to the lateral sepals for 3 mm to form a shallow, gaping cup, the rounded apex contracted into a slender, acutely reflexed tail 33-45 mm long, the lateral sepals connate 13 mm to form a broadly expanded, transversely obovate lamina 17 mm long, 33 mm wide, the transverse apices abruptly contracted into descending tails 25-35 mm long; **petals** yellow-white, thick, more or less oblong, 2.5 mm long, 1-1.75 mm wide, the apex obtuse, the labellar margin with a longitudinal callus produced into a narrowly triangular wing near the middle and a slender retrorse tooth at the base; **lip** white, marked with purple, more or less oblong-pandurate, 3.5 mm long, 1.25-1.5 mm wide, the sides revolute forming a bulbous dilatation at the base, connected from within to the column-foot by a thin, flexible strap, above the bulbous base the margins thin, everted, with obtuse angles, minutely erose, then narrowed to the clavate apex formed by the expanded, revolute tip; **column** greenish white, dotted with purple, curved, longitudinally winged, 4 mm long, the foot short, broad, thick, 1 mm long.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. 1900 m, collected by B. Malo, cultivated at Tarqui, 4 May 1981, *C. Luer 6092* (Holotype: SEL); epiphytic in canyon above Río Yumbala, alt. 2400 m, 13 Feb. 1982, *D. D'Alessandro 152* (SEL); Parqué Nacional Podocarpus, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 16 May 1988, *C. Luer 13378* (MO); forest between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13590* (MO).

Masdevallia citrinella is not infrequent in the forests of southeastern Ecuador. It is easily recognized by the lemon yellow, broadly expanded synsepal diffusely but minutely dotted with red-brown. As in the other members of the subsection *Oscillantes*, the balanced lip protrudes from the center of the flower. The flowers of some recently discovered plants are considerably larger than those originally found, and the flowers are borne above the leaves by erect peduncles.

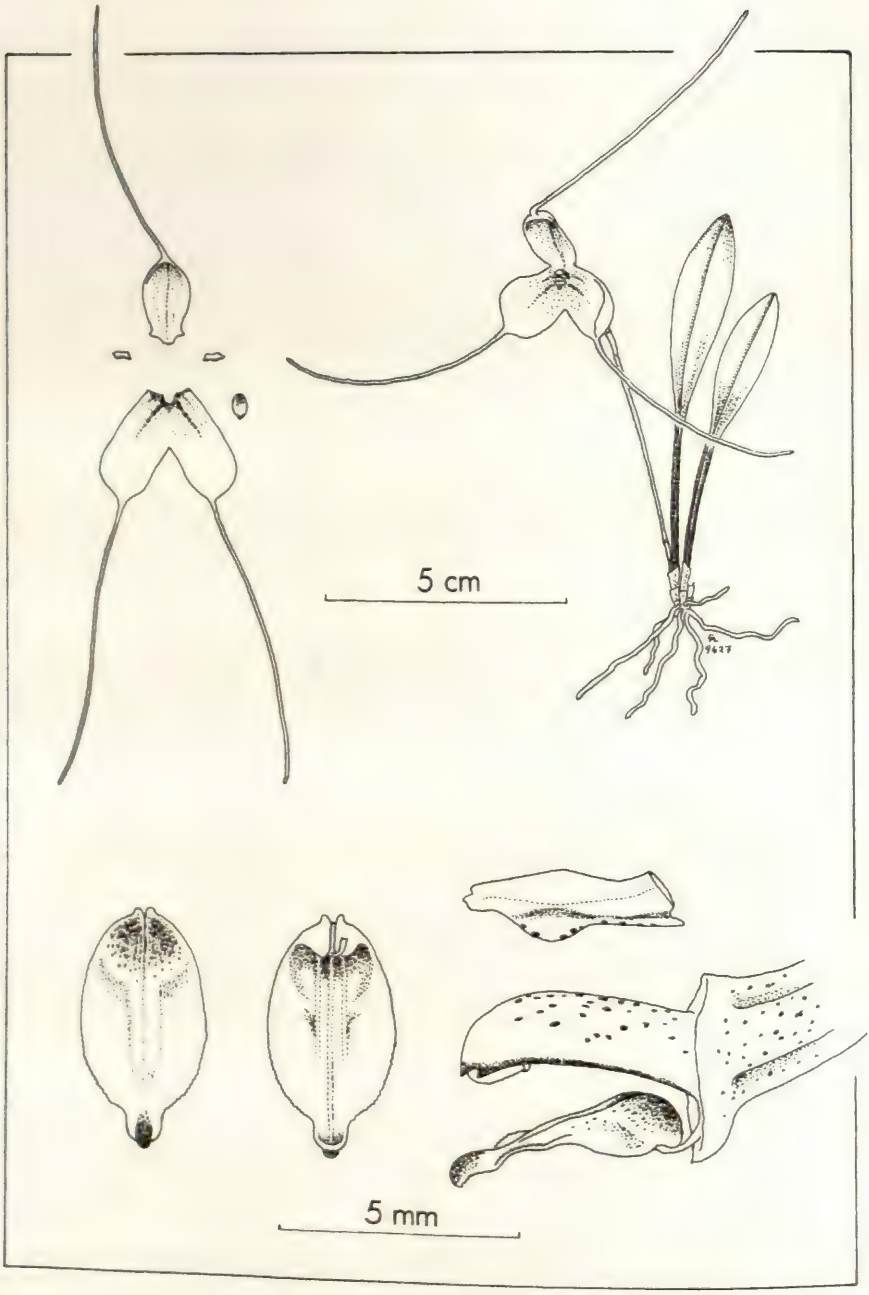


Plate 477. Masdevallia dalessandroi

Masdevallia cretata Luer, sp. nov.

Ety.: From the Latin, *cretatus*, "chalky white," referring to the sepals.

Species haec *M. ortalis* Luer similis, sed sepalorum caudis longioribus et labelli alis supra medium angustis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 0.5-0.8 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, 4-5 cm long including the petiole 1.5 cm long, 1.1-1.7 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, suberect peduncle, 1.5-1.8 cm long, with a bract at the base, from low on the ramicaul; floral bract 8 mm long; pedicel 13 mm long; ovary 5 mm long; **sepals** yellow-white, with a few small, red markings and suffused with light yellow toward the base, glabrous, the dorsal sepal suborbicular, concave, 12 mm long, 12 mm wide, connate to the lateral sepals for 7 mm to form a gaping, sepaline cup, the rounded apex abruptly contracted into a slender, deflexed, yellow tail 3.5 cm long, the lateral sepals suborbicular, connate 7 mm into a synsepal 10 mm long, 16 mm wide, the apices broadly obtuse, contracted into tails 3 cm long; **petals** white, cartilaginous, oblong, the truncate apex obscurely bifid, 3.5 mm long, 1.5 mm wide, with an obtuse, winglike carina near the middle along the labellar margin, and a small, acute, retrorse process at the base; **lip** cream, flecked with red, oblong, with low, broad, winglike margins above the middle, 4.5 mm long, 1-1.5 mm wide, the disc shallowly channeled between a longitudinal pair of calli, the apex red, acutely deflexed, the base shallowly cordate, hinged from beneath; **column** white, semiterete, 4 mm long, the foot thick, 1 mm long with an incurved extension.

ECUADOR: Without locality, collected by Jan Schoonen, cultivated in Putte, The Netherlands, Oct. 1991, *C. Luer 15516* (Holotype: MO).

This species, is apparently endemic in Ecuador, but the locality has been lost. It resembles *M. ariasii* for which it had been mistaken, but differs in having leaves acute at the apex instead of rounded or obtuse. The flowers appear similar, but the petals of *M. cretata* have an obtuse, winglike process near the middle and an acute, retrorse tooth protruding beyond the base; and the lip has narrow wings above the middle. It keyes to *M. ortalis* from which it differs with longer sepaline tails and the narrow, labellar wings above the middle, the labellar wings of *M. ortalis* being much larger and below the middle.

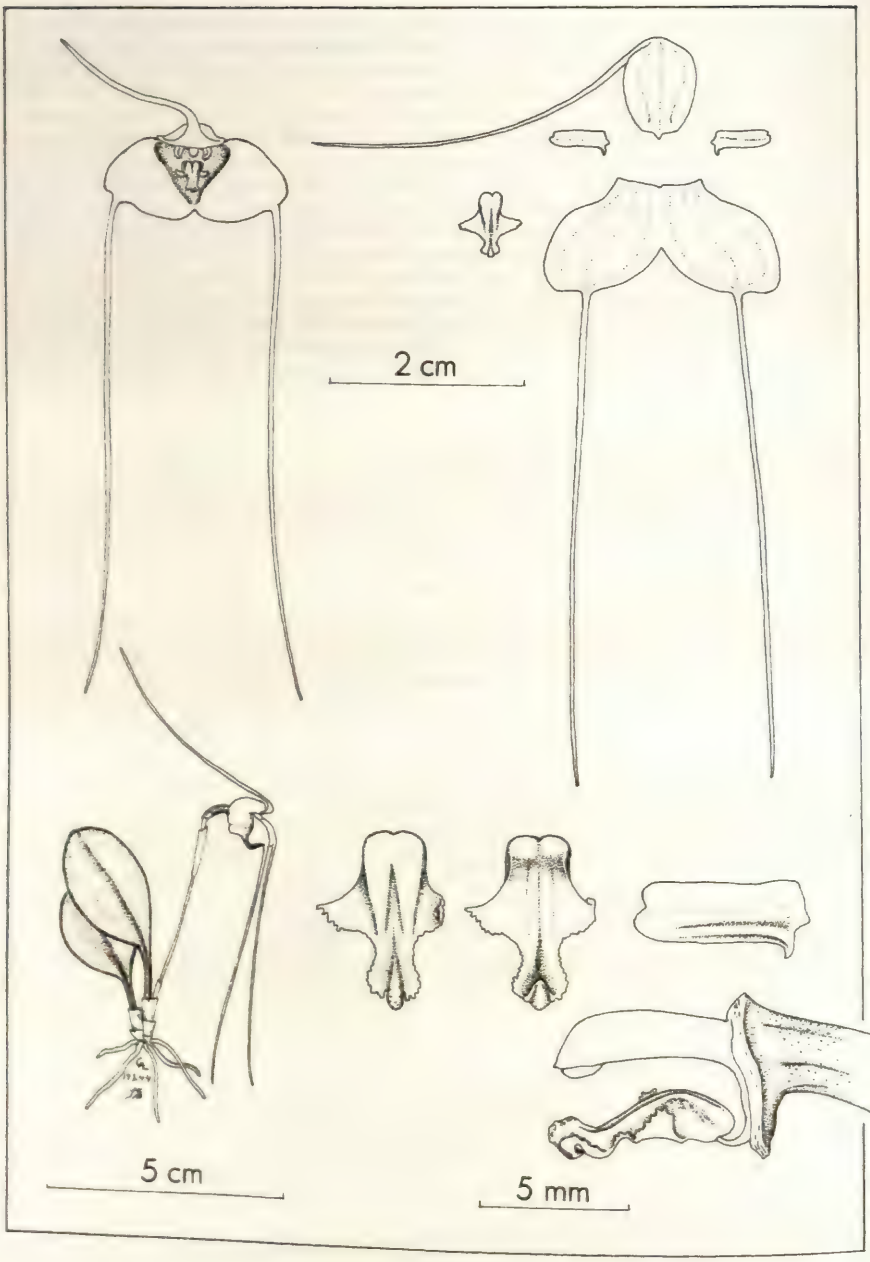


Plate 478. **Masdevallia ejiriana**

Masdevallia dalessandroi Luer, Phytologia 57: 62, 1985.

Ety.: Named for Dennis D'Alessandro, formerly of Vilcabamba, Ecuador, who first discovered this species.

Syn.: *Masdevallia velox* Königer, Arcula 3: 70, 1995.

Ety.: From the Latin *velox*, "quick, agile," referring to the oscillating lip.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicaul slender, erect, blackish, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, dark green, mottled gray beneath, long-petiolate, 4-7 cm long including the petiole 2-2.5 mm long, the blade elliptical, subacute to acute, 1-1.8 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 5-7 cm long, with a bract near the base, from low on the ramicaul; floral bract 9-12 mm long; pedicel 12-15 mm long; ovary 5-7 mm long; **sepals** light yellow-green, dotted with red within, widespread, the dorsal sepal obovate, concave above the middle, 15-17 mm long, 10-13 mm wide expanded, connate to the lateral sepals for 3 mm into a shallow, gaping cup, the apex obtuse to round, contracted into a slender, reflexed, green tail 5.5-6 cm long, the lateral sepals oblong, 20-23 mm long, 12 mm wide, connate 9 mm, the broadly obtuse to rounded apices contracted into tails similar to that of the dorsal sepal; **petals** yellow-white with purple dots, more or less oblong, 4.5-5 mm long, 1.5 mm wide, the narrowly truncate apex subtridentate, the labellar margin with a broadly rounded lamella along the middle third, ending in a short, retrorse tooth at the base; **lip** white, marked with purple, elliptical, 5 mm long, 2.75 mm wide, the thin margins minutely serrulate above the middle, the apex narrowed and shortly oblong, convex, with a purple callus, the disc convex below the middle, lightly sulcate, the base loosely and narrowly hinged from the cavity beneath to the column-foot; **column** yellow-white with purple dots and margin, semiterete, 4.5 mm long, the foot barely 1 mm long with a slender, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest above Valladolid, alt. 1900 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9627* (Holotype: MO); epiphytic in cloud forest between Loja and Zamora, alt. 2000 m, collected by B. Malo, cultivated at Tarqui, 25 May 1988, *C. Luer 13685* (MO); same area, 4 May 1994, collected by D. D'Alessandro, *C. Luer 17171* (MO); without locality, obtained from Padre Andreetta by P. Cloes, cultivated in Hasselt, Belgium, *C. Luer 17790* (MO); between Los Encuentros and El Panguí, Pincho, alt. 1000 m, 1 Aug. 1995, *W. & H. Königer, J. Portilla, H. Mendoza et al. K-337b* (holotype of *M. velox*: M; clonotypes: K, QCA).

First found by Dennis D'Alessandro, this species occurs locally in cloud forests of southern Ecuador. Superficially, the handsome, widely spread flower, but with an oscillating lip, suggests subsection *Caudatae*. The light yellow-green sepals minutely dotted with red are oblong and obtuse with much longer, slender tails. The petals possess above the middle a low, broadly rounded lamella that ends in a very short, acute, retrorse tooth at the base. The elliptical lip with broad, thin margins is convex at the base and finely hinged from the cavity beneath by a slender extension from a short column-foot.

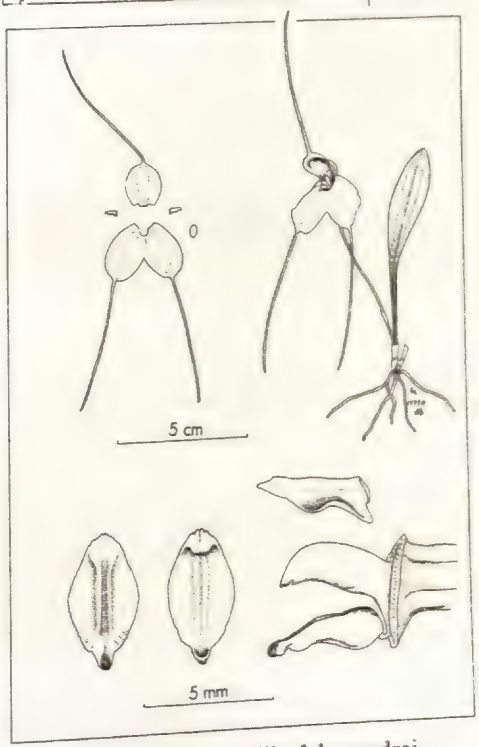


Plate 476. Masdevallia dalessandroi

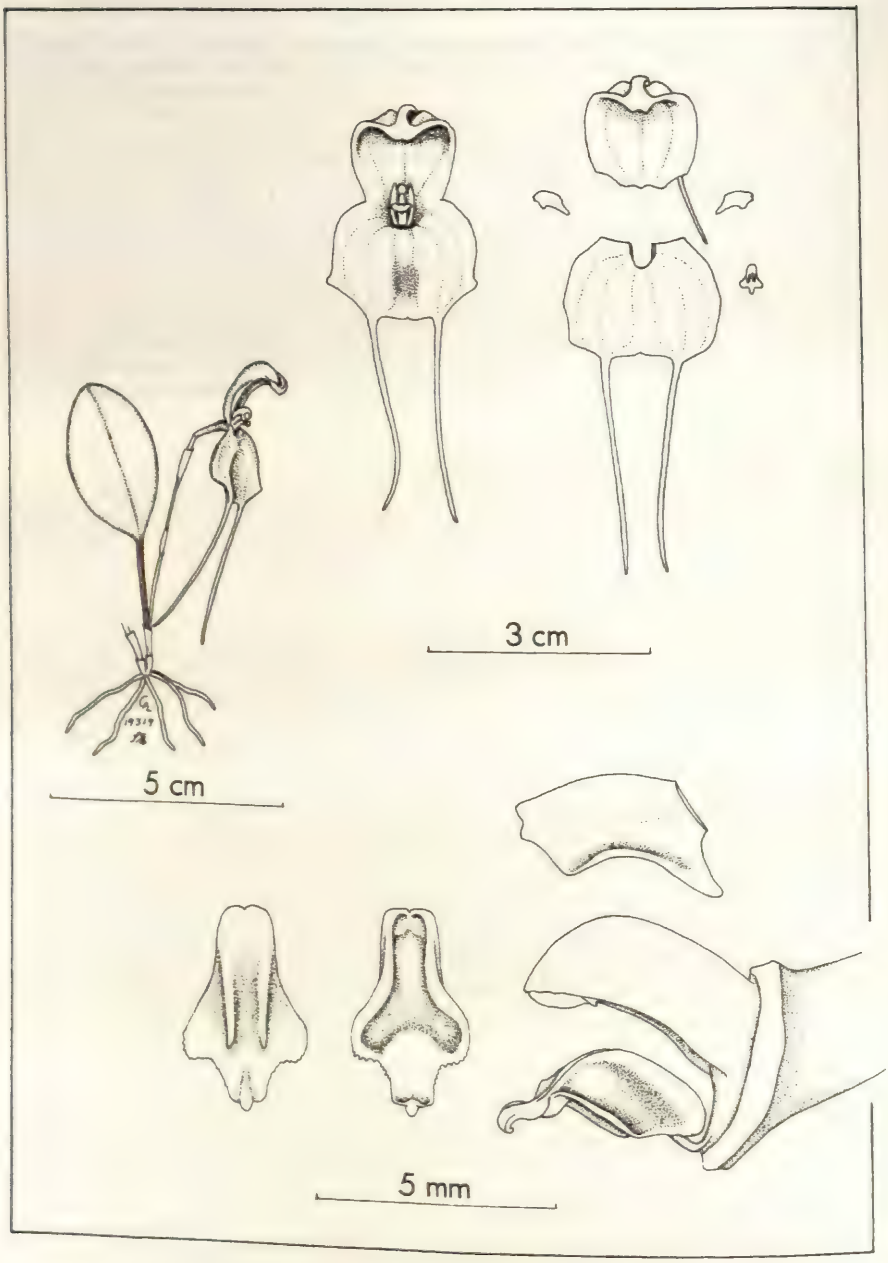


Plate 479. Masdevallia formosa

Masdevallia ejiriana Luer & Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 150, 1999.

Ety.: Named for Munekazu Ejiri of Chiba, Japan.

Plant medium in size for the subsection, epiphytic, caespitose; roots slender; ramicauls blackish, slender, erect, 0.5-1 cm long, enclosed by 2-3 loose, black, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 3.5-4 cm long including the petiole 1-1.5 cm long, the blade broadly elliptical, obtuse to rounded at the apex, 1.2-1.6 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 11 mm long; ovary 6 mm long; **sepals** white, glabrous externally, microscopically pubescent within, the dorsal sepal suborbicular, concave, 9 mm long, 7.5 mm wide, connate to the lateral sepals for 4 mm to form a broad cup, the apex rounded, abruptly contracted into a slender, white, reflexed tail 5 cm long, the lateral sepals broadly elliptical-oblong, 12 mm long, 9 mm wide, connate 6 mm, the apices oblique, rounded, abruptly contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 6 mm long, 2.25 mm wide, the apex broadly bilobed, the lower margin with a longitudinal callus ending in a small, descending process above the base; **lip** heavily suffused with red-purple, trilobed, 6.5 mm long, 4.6 mm wide expanded, the margins thin and expanded into triangular lobes on the middle third, with the edges fimbriate, the apical third coarsely erose, the tip decurved with a large midline callus, the disc sulcate on the middle third between calli from the thick, distal third, subcordate, hinged beneath; **column** white, semiterete, 5.5 mm long, the foot 2 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: Pangui, alt. 1500 m, collected 20 Apr. 1996 by J. Portilla, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 19* (Holotype: MO), C. Luer illustr. 19244.

This species is apparently endemic in southeastern Ecuador where it is known only by the original collection made by José Portilla. It is superficially similar to sympatric *M. andreettana*. The flowers of both species are white with broadly expanded lateral sepals. The petals are also similar with a small, descending tooth above the base. *Masdevallia ejiriana* is best distinguished from *M. andreettana* by the prominent, fringed, wing-like lobes on the middle third of the lip.

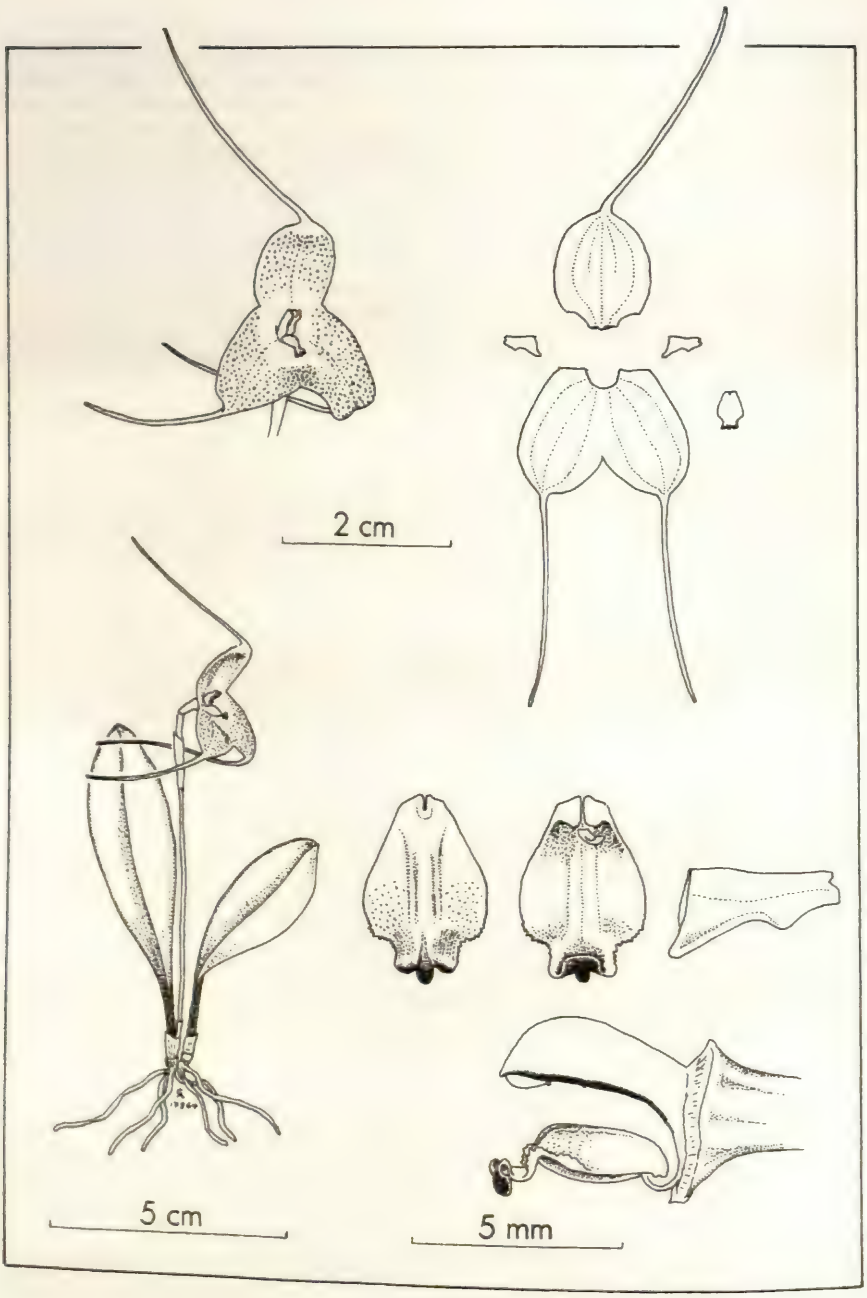


Plate 480. Masdevallia josei

Masdevallia formosa Luer & Cloes, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 121, 2000.

Ety: From the Latin *formosus*, "handsome," referring to the pleasing appearance of the plant.

Plant medium in size for the subsection, epiphytic, caespitose; roots coarse. Ramicauls blackish, stout, erect, 1.5 cm long, enclosed by 2-3 dark, tubular sheaths. **Leaf** erect, coriaceous, petiolate, the blade elliptical, obtuse, 3.5 cm long, 2 cm wide, cuneate below and abruptly contracted into the petiole 1.2-1.5 cm long. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 3 cm long, with a bract above the base, from low on the ramicaul; floral bract 8 mm long; pedicel 11 mm long; ovary 7 mm long; **sepals** pale yellow-orange, the dorsal sepal erect, subquadrate, 15 mm long, 15 mm wide, connate to the lateral sepals for 4 mm to form a shallow, gaping cup, concave and cucullate above the middle, the apex obtuse, decurved, abruptly contracted into an acutely reflexed tail 33 mm long, the lateral sepals oblong, connate 13 mm into a subquadrate lamina, 15 mm long, 20 mm wide, the transverse apices contracted into tails 30 mm long, similar to that of the dorsal sepal; **petals** pale yellow, broadly oblong, 4 mm long, 1.75 mm wide, the apex subtruncate, obscurely lobed, the labellar margin curved with a marginal callus terminating into a thick, retrorse, triangular process; **lip** light orange-brown, with brown dots, oblong-trilobed, the apical lobe subquadrate with a decurved, midline callus, the lateral, winglike lobes above the middle, obtuse, antrorse, microscopically erose, 4 mm long, 2.75 mm wide across the wings, the disc elevated from the base, becoming a pair of longitudinal calli on the middle third, the base concave beneath, hinged from within; **column** yellow, semiterete, proportionately large, 5 mm long, 2 mm wide, the foot thick, 1 mm long, with an incurved extension.

PERU: **Amazonas**: between Pomacochas and Río Ripa, collected and cultivated in Hasselt, Belgium, by *P. Cloes 200 104* (Holotype: MO).

Among the species of subsection *Oscillantes*, this species is distinguished by the pale peach-colored flower with an erect dorsal sepal that is hooded or concave above the middle with the tail acutely reflexed. The lateral sepals are connate into a broad, suborbicular lamina that is abruptly contracted into a pair of descending tails. The petals, column and lip are exposed and erect in the center of the flower. The basal process of the petals is obliquely triangular and retrorse. The lip is trilobed above the middle, with the lobes wing-like, broadly triangular, obtuse and antrorse. The disc is convex through the basal two-thirds, and deeply concave beneath.

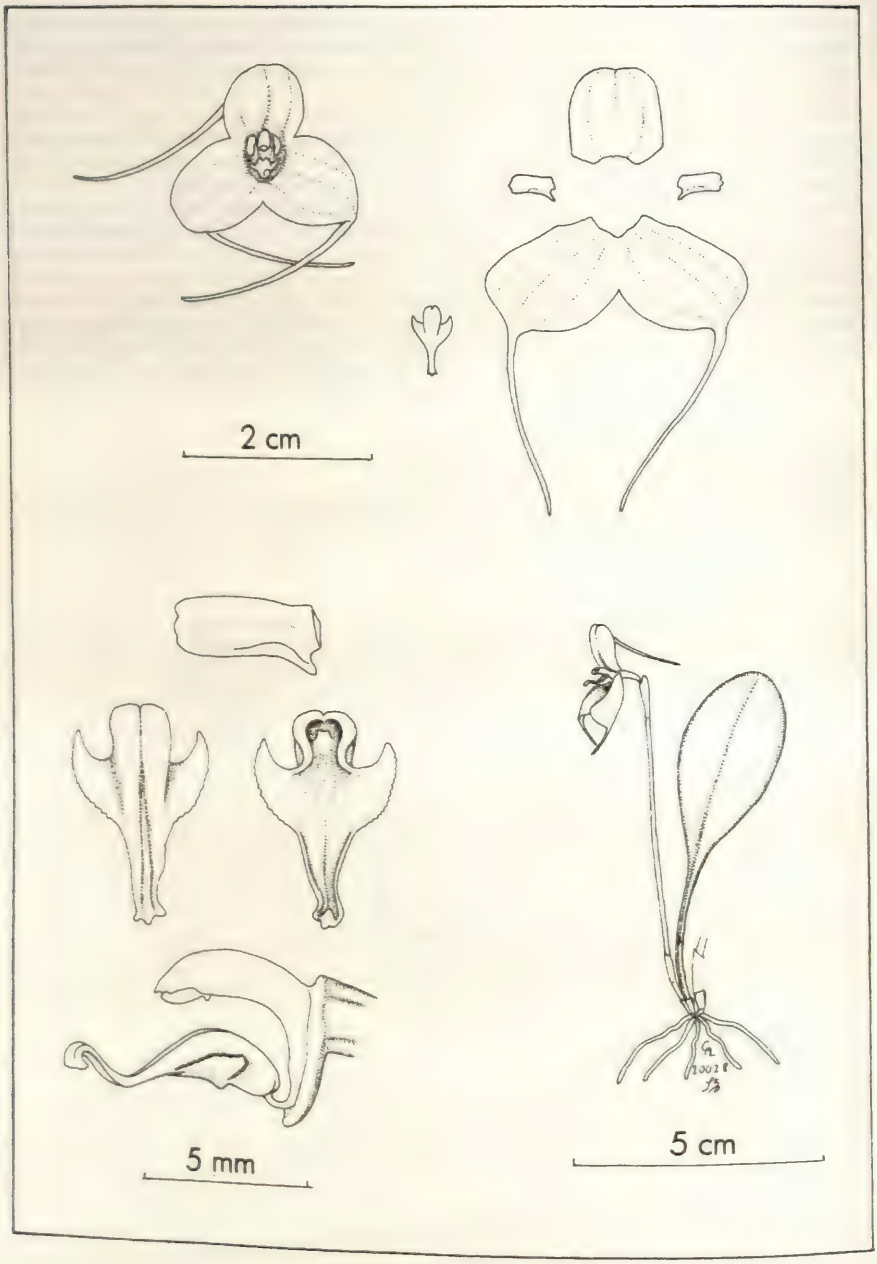


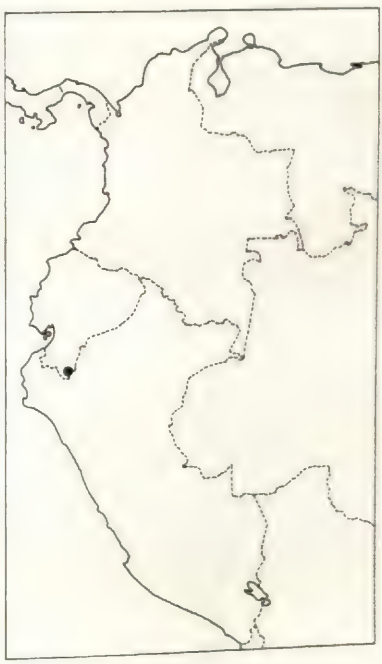
Plate 481. Masdevallia manta

Masdevallia josei Luer, Harvard Papers in Botany 9: 6, 1996.

Ety.: Named in honor of José Portilla of Cuenca, Ecuador, who first collected this taxon.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-6.5 mm long including a black petiole 1-1.5 cm long, the blade elliptical, obtuse, 1.7-2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3.5-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10-12 mm long; pedicel 10-12 mm long; ovary 5-6 mm long; **sepals** yellow, diffusely speckled or flecked with purple, glabrous, the dorsal sepal suborbicular, slightly concave, 11-13 mm long, 10-11 mm wide, connate to the lateral sepals for 5 mm to form a gaping flower, the rounded apex contracted into a reflexed to suberect, yellow tail 3 cm long, the lateral sepals oblong, oblique, 15-16 mm long, 10-13 mm wide, connate 7-8 mm, the apices obtuse to rounded, contracted into reflexed tails similar to that of the dorsal sepal; **petals** white, suboblong, 3.5 mm long, 1-2 mm wide, the apex obtusely bilobulate-truncate, the labellar margin with a longitudinal, winglike carina, obtusely angled above the middle, produced into a thick, triangular process at the base; **lip** rosy white, flecked with purple, obovate, convex, 4.5 mm long, 3 mm wide, contracted below the apex, the apex suffused with blackish purple, trilobulate, with a large, black callus at the margin constituting the middle lobule, the base subtruncate, cleft, hinged beneath; **column** white with a thin, purple margin, semiterete, 4 mm long, the foot 2 mm long with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: collected by José Portilla near Zumba, alt. 1800 m, received from A. Hirtz, Hirtz 6313, flowered in cultivation at J & L Orchids, Easton, CT, 8 May 1996 *C. Luer 17864* (Holotype: MO).



This species is apparently endemic in southernmost Ecuador. A possibility exists that it is a natural hybrid between *M. instar* and a species of subsection *Oscillantes*, several of which occur in that area. Until such a hybrid is produced in cultivation, *M. josei* will be treated as a species of subsection *Oscillantes*.

Vegetatively similar to many of the related species, *M. josei* is characterized by a widely patent flower with yellow sepals flecked with purple and long, swept-back tails. The petals possess a retrorse, triangular process at the base. The lip is ovate and broadly narrowed below the recurved apex, and it oscillates from a thin extension of the column-foot into the concave undersurface.

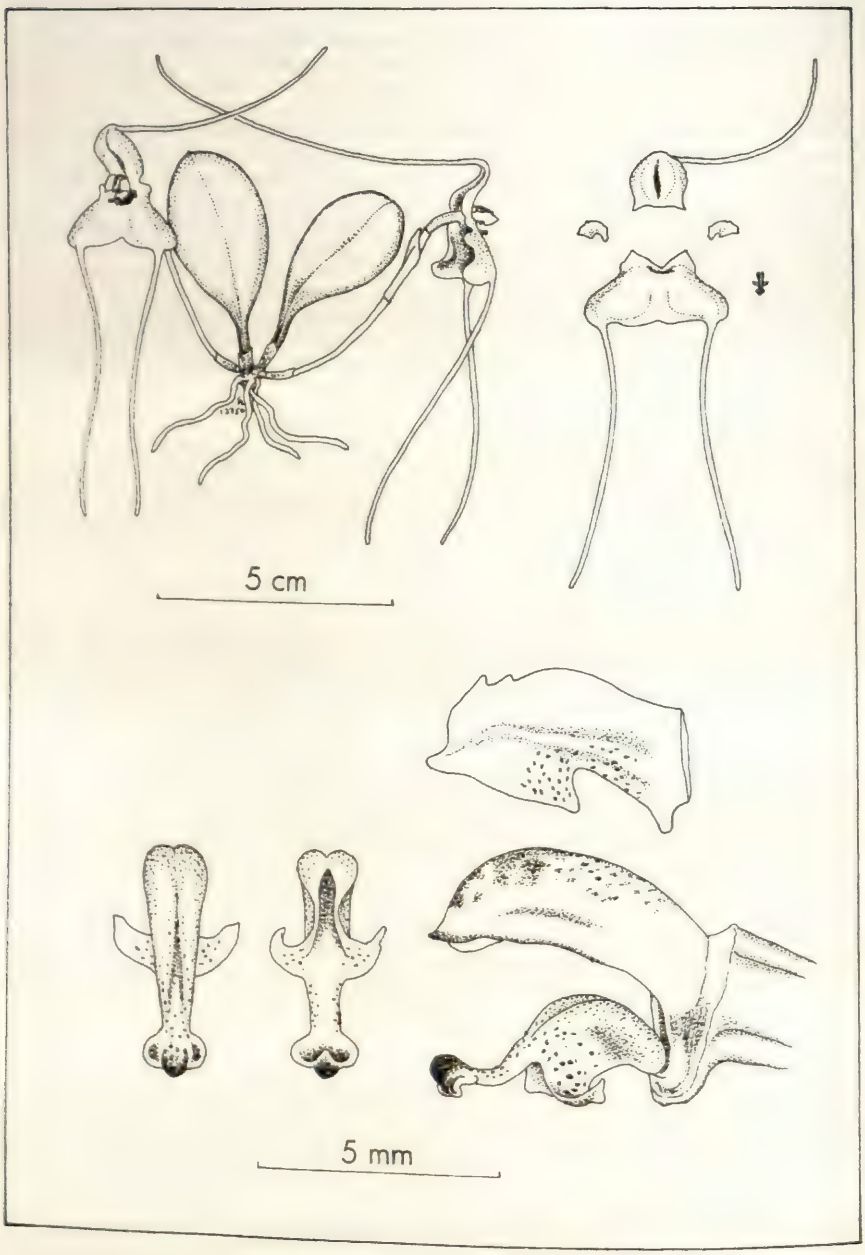


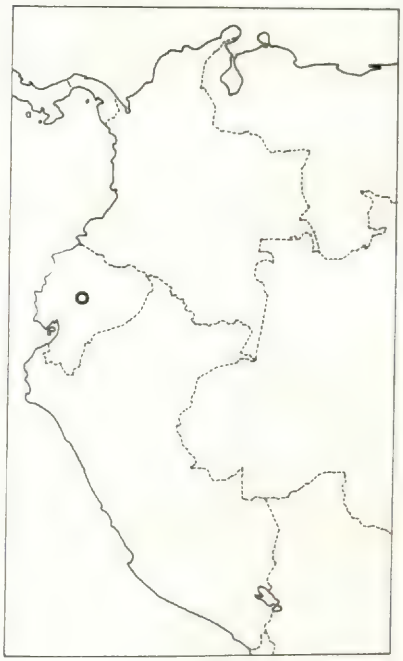
Plate 482. Masdevallia microptera

Masdevallia manta Königer, Arcula 10: 270, 2000.

Ety.: Named for the fancied resemblance of the shape of the lip to a Manta ray (*Manta birostris*).

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, blackish, 15 mm long, enclosed by 2-3 short, tubular sheaths. **Leaf** erect, coriaceous, 5-6 cm long including the petiole ca. 1.5 cm long, the blade elliptical, obtuse, 1.8-2 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne by an erect, slender peduncle 5-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 9-11 mm long; pedicel 9-10 mm long; ovary 6-7 mm long; **sepals** glabrous, the dorsal sepal yellow-green, suffused with pale purple and with dark purple dots, 9-10 mm long, 8-9 mm wide, connate to the lateral sepals for 3 mm into a shallow, gaping, sepaline cup, the rounded apex acutely reflexed and abruptly contracted into a slender, yellow-green tail 20-26 mm long, the lateral sepals broadly oblong, 12-15 mm long, 10 mm wide, the apices oblique, obtuse, abruptly contracted into slender tails 16-20 mm long; **petals** pale brown, oblong, 4.5 mm long, 2 mm wide, with the apex truncate, obscurely trilobulate, the labellar margin with a longitudinal winglike lamella ending in a short, acute, retrorse tooth at the base; **lip** white, suffused with purple at the apex, more or less oblong, trilobed, 7 mm long, 2 mm wide at the base, 4.5 mm wide across the lateral lobes, 0.75 mm wide toward the apex, the lateral winglike, membranous, broadly uncinate, acute, retrorse, minutely-erose on the forward margins, the apex of the lip narrowly obtuse and decurved, with 3 longitudinal dark purple calli, the base bulbous, concave beneath and hinged to the column-foot; **column** white, suffused with purple, semiterete, 5 mm long, the foot 2 mm long, with a slender, incurved extension.

ECUADOR: Without collection data, received from José Portilla, Gualaceo, Ecuador, cultivated by A.P. Sijm in Venhuizen, The Netherlands, *W. Königer WK-103* (Holotype: M); flowered in cultivation, Aug. 2001, by *A.P. Sijm s.n.* (MO), C. Luer illustr. 20028.



This species, known only from an Ecuadorian collection without data, is very closely related to *M. pteroglossa* of the Western Cordillera of Colombia, and could be considered a larger geographical variation. All physical features are shared in common.

The sepals are about 20% larger. The apex with the tail of the dorsal sepal is acutely reflexed. The petals are similar with a short, retrorse tooth at the base. Although the lip is about 40% larger, it is similar in shape to that of *M. pteroglossa*. Broadly uncinate, retrorse, winglike lobes project from the margins below the middle. Above the middle the lip is narrowed to the acutely reflexed tip.

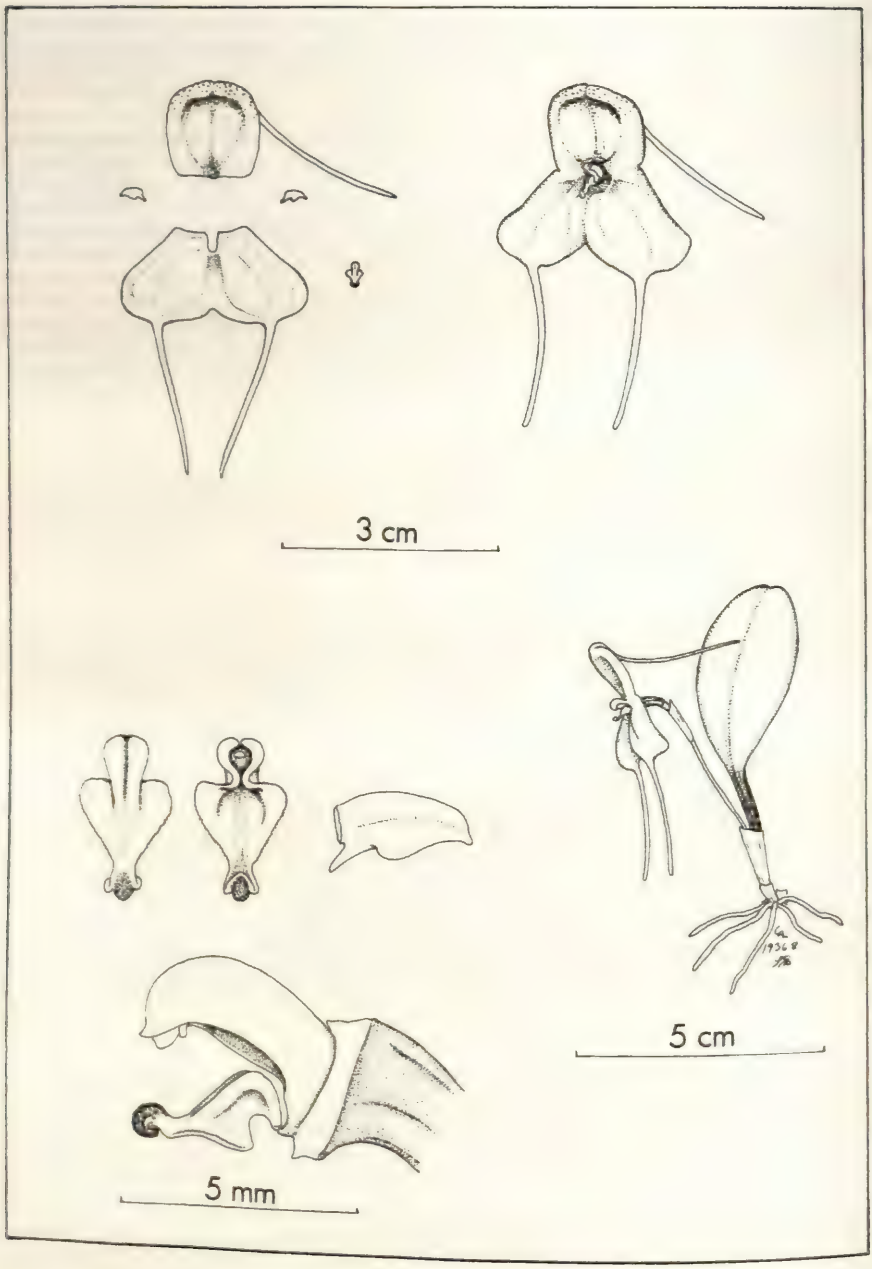


Plate 483. Masdevallia nikoleana

Masdevallia microptera Luer & Würstle, Lindleyana 4: 116, 1989.

Ety.: From the Greek *micropteron*, "a minute wing," referring to the small wings of the lip.

Plant small, presumably epiphytic, caespitose; roots slender. Ramicauls stout, erect, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 3-4.5 cm long including the petiole 5-7 mm long, the blade broadly elliptical, 1.7-2 cm wide, the apex obtuse to rounded, the base cuneate into the petiole. **Inflorescence** a single flower borne by an ascending peduncle ca. 3 cm long, with a bract at the base, from low on the ramicaul; floral bract 15 mm long; pedicel 15 mm long; ovary 5-6 mm long; **sepals** rigid, fleshy, the dorsal sepal yellow with purple medially and with a minute purplish pubescence within, broadly ovate, 11 mm long, 11 mm wide, connate to the lateral sepals for 3 mm to form a gaping flower, the apex obtuse, contracted into a slender, reflexed, light green tail 62 mm long, the lateral sepals rosy yellow with a minute, purplish pubescence within, ovate, oblique, convex with recurved lateral margins, 15 mm long, 13 mm wide, connate to each other for 10 mm, the apices transversely obtuse, contracted into slender, yellow-green tails 55 mm long; **petals** yellow, dotted with purple, cartilaginous, suboblong, carinate medially, arcuate, obliquely apiculate, 5.5 mm long, 3 mm wide, the upper margin with 2 small, obtuse teeth, the labellar margin with a large, retrorse angle near the middle and a smaller, descending angle at the base; **lip** white, dotted with brown, narrowly subovate, 4.5 mm long, 1 mm wide, the apex dark brown, clavate-trilobed, decurved, with a 1 mm long, uncinate wing on each side near the middle, thickened from near the middle to the rounded, convex base, hinged from the concavity beneath; **column** white, marked with purple, arcuate, semiterete, 5 mm long, the foot thick, 1 mm long, with a very short, incurved extension.

PERU: **Amazonas**: between Pomacochas and Chido, collected by J. Meza in 1986, cultivated by B. Würstle, 2 Oct. 1988, *C. Luer 13750* (Holotype: MO).

This Peruvian species was obtained from Jorge Meza Torres and cultivated by Berthold Würstle in Germany. It is distinguished by the rigid, fleshy, long-tailed, rose colored sepals with a purple pubescence. The sepals are more or less convex with revolute sides. The petals are broadly curved with an oblique process at the middle and a much smaller one at the base. The lip is narrowly ovate with a pair of small, uncinate, retrorse wings that emerge from the middle of the sides.

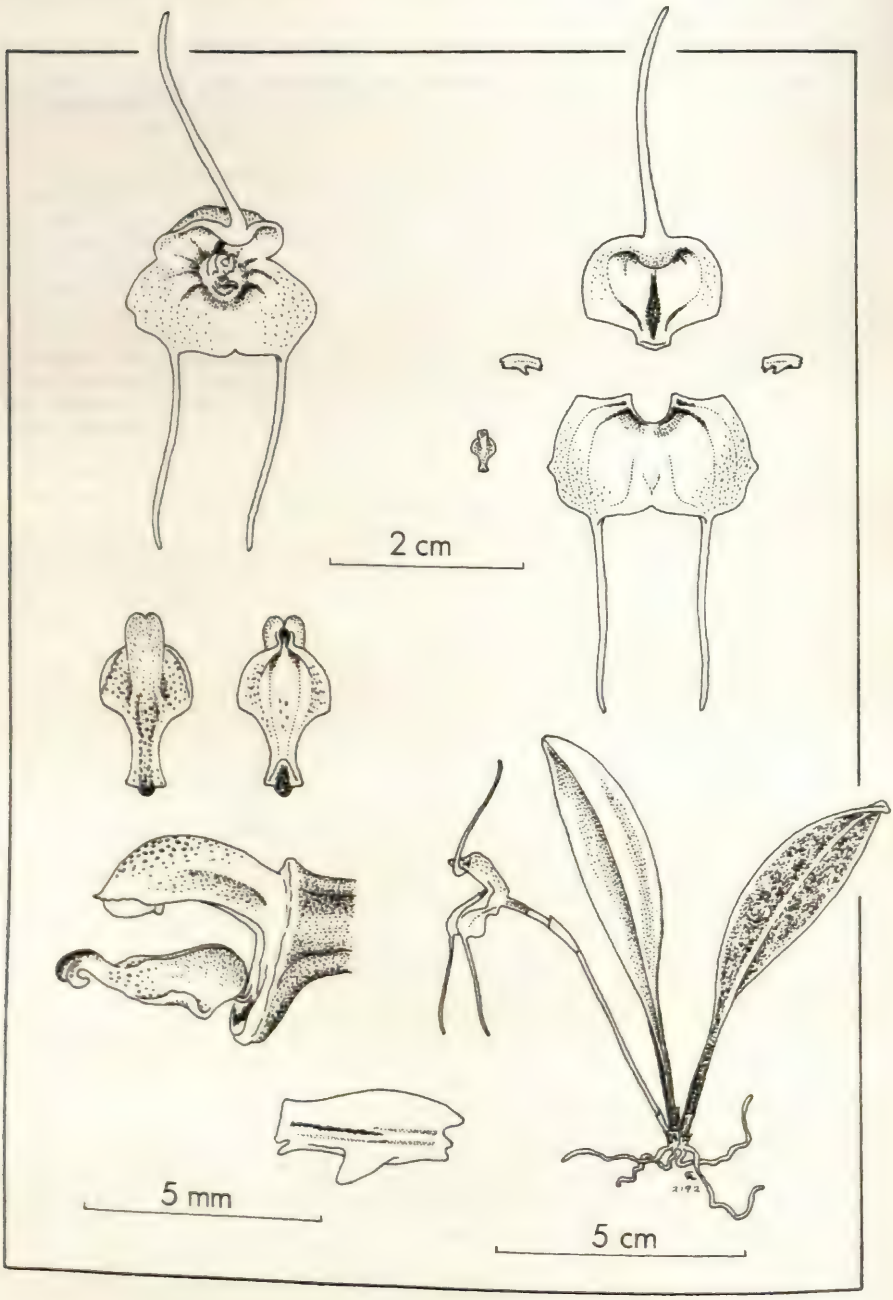


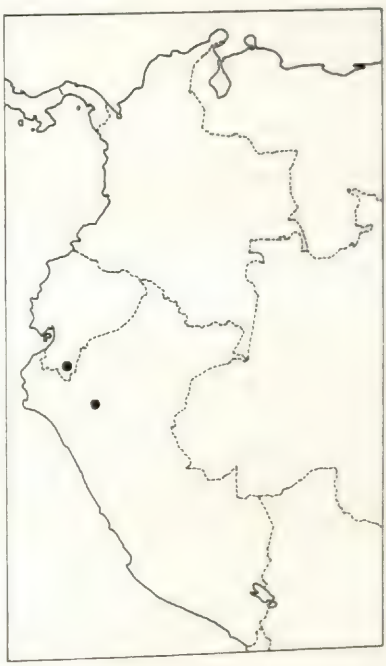
Plate 484. Masdevallia ortalis

Masdevallia nikoleana Luer & Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 124, 2000.

Ety: Named for Nikole, daughter of José Portilla of Gualaceo, Ecuador.

Plant medium in size for the subsection, epiphytic, caespitose; roots coarse. Ramicauls blackish, stout, erect, 1.5-2.5 cm long, enclosed by 2-3 dark, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 2.5-5 cm long including the petiole 1-1.5 cm long, the blade elliptical, obtuse, 1.5-2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 2-2.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 9 mm long; pedicel 10 mm long; ovary 5 mm long; **sepals** orange to yellow-orange, marked with red at the base, cellular-glandular within, glabrous externally, the dorsal sepal verrucose along the thickened, apical margin, broadly elliptical, concave, 13 mm long, 13 mm wide, connate to the lateral sepals for 4 mm to form a shallow, gaping cup, the apex broadly rounded, abruptly contracted into a slender, reflexed, tail 28 mm long, the lateral sepals oblong, oblique, 15 mm long, 13 mm wide, connate 9 mm, the transverse apices contracted into tails 20 mm long, similar to that of the dorsal sepal; **petals** white, elliptical-oblong, 2.75 mm long, 1.25 mm wide, the apex acute, with a thin, broadly rounded, fin-like carina on the margin of the middle third, and an acute, retrorse process at the base; **lip** yellow, oblong-pandurate, arcuate, with broad, thin wings on the middle third, minutely erose, 3.5 mm long, 2 mm wide across the wings, the apex red, thickened beyond a constriction, with the tip verrucose, revolute, the disc with a tall, curved callus on the basal third, concave beneath, hinged from within; **column** yellow, semiterete, deeply concave ventrally with thin, dilated margins, 4 mm long, the foot scarcely 1 mm long, with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Zumba, alt. 1800 m, collected in 1998, cultivated at Ecuagenera, Gualaceo, Ecuador, *J. Portilla 1120* (Holotype: MO); C. Luer illustr. 19368.
PERU: **Amazonas**: obtained from M. Arias, cultivated at Ecuagenera, Gualaceo, Ecuador, *J. Portilla 1114, 1119* (MO).



Although this species has been found recently in both southernmost Ecuador and neighboring Peru, it had not been recognized previously. It is most similar to *M. ortalis* Luer. Among the members of the subsection *Oscillantes*, both species are characterized by an orange flower marked with red, especially at the base. The sepals are broad and obtuse with the dorsal sepal concave. The petals of both species have an acute, retrorse process at the base, but the tip of the petal of *M. nikoleana* is acute instead of tridentate, and the marginal wing is broadly rounded instead of acute. The lip is tall-convex below the middle and sloping forward, broadly winged, and constricted below the thick, recurved apex.

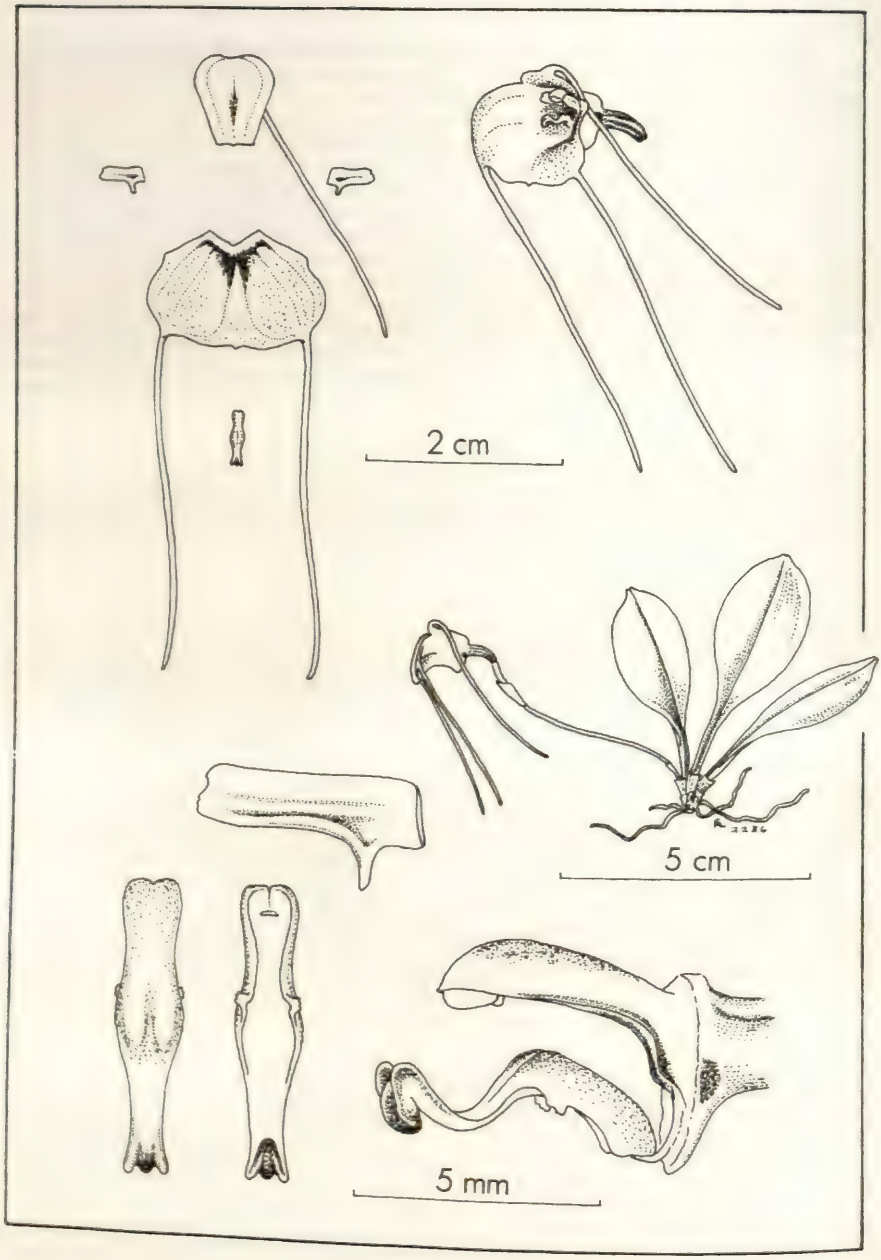


Plate 485. Masdevallia persicina

Masdevallia ortalis Luer, Phytologia 39: 216, 1978.

Ety.: From the Greek *ortalis*, "a young bird, or chick," in fancied allusion to the resemblance of the flower to a hungry nestling.

Syn.: *Masdevallia rodolfoi* subsp. *ortalis* (Luer) Luer, Lindleyana 3: 59, 1988.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, dark green, mottled with purple beneath, petiolate, 3.5-7.5 cm long including the petiole 1-1.5 cm long, the blade elliptical, subacute, 1.3-1.6 cm wide, the base cuneate into the slender, blackish petiole. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle 3-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-10 mm long; pedicel 13 mm long; ovary blackish, 5 mm long; **sepals** yellow, suffused with red or purple along the veins toward the base, glabrous externally, microscopically verrucose within, the dorsal sepal transversely obovate-oblong, concave, 11 mm long, 14 mm wide expanded, connate to the lateral sepals for 5-6 mm to form a shallow, gaping, sepaline cup, the apex rounded with the margin thickened, abruptly contracted into a reflexed, yellow-green tail ca. 25 mm long, the lateral sepals connate 8 mm into a transversely oblong lamina 12 mm long, 21 mm wide, the broadly obtuse apices abruptly contracted into descending tails 20 mm long; **petals** white, marked with purple along the midvein, oblong, 4 mm long, 1.5 mm wide, the apex truncate, tridentate, the labellar margin with a longitudinal callus developed near the middle into an erect, acute, retrorse finlike process, and with a small, acute process at the base; **lip** yellow, marked with purple, more or less oblong-trilobed, 3.75 mm long, 2 mm wide across the lobes, the margins dilated in the middle third into thin, obtuse, winglike lobes, microscopically erose, the apical third narrowed with the narrowly rounded apex acutely recurved, with a medial callus, the basal third rounded, convex with revolute margins, concave beneath, delicately hinged from within; **column** yellow, flecked with red, semiterete, 4 mm long, the thick foot 2 mm long, with a filamentous, incurved extension.

Without collection data, erroneously reported to be from Ecuador, cultivated by J & L Orchids, 13 Nov. 1977, *C. Luer 2192* (Holotype: SEL).
PERU: **Amazonas**: near Pomacochas, alt. 2000 m, Aug. 1979, *W. Köniğer & H. Köniğer K-28c* (K, M, SEL, W, USM, Herb. H. Köniğer).

This species was described from a cultivated plant without collection data, erroneously reported to have been from Ecuador. This species has never been seen in Ecuador, but it is now known to be relatively frequent in the area around Chachapoyas in northern Peru.

Masdevallia ortalis is closely allied to *M. rodolfoi*, and it has been treated as a subspecies of the latter. After reconsideration, the differences seem sufficiently distinct to maintain the two separately. *Masdevallia ortalis* is distinguished by narrower, acute leaves; a taller, erect peduncle (instead of short and horizontal); a cupped flower (instead of flat); and twice longer, descending tails of the lateral sepals.

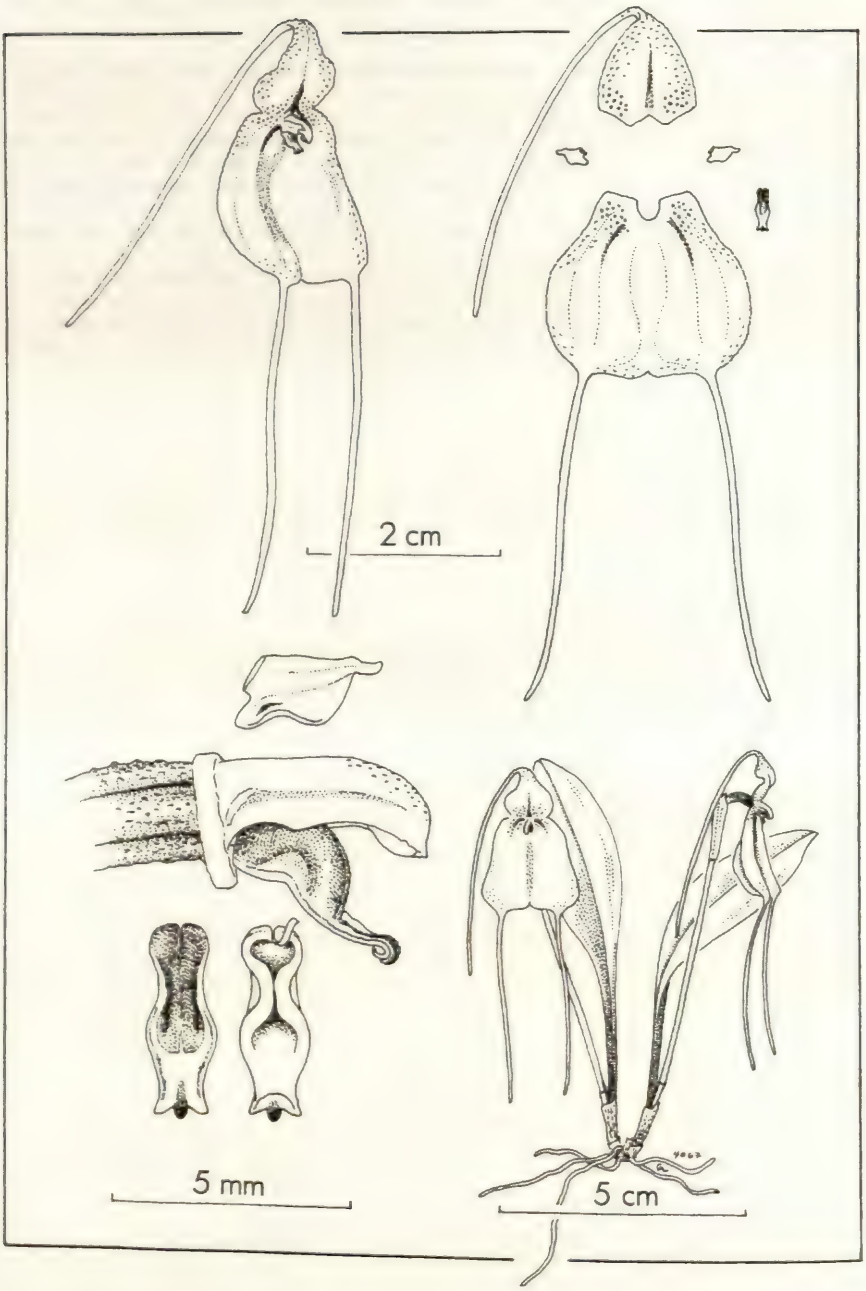


Plate 486. Masdevallia phasmatodes

Masdevallia persicina Luer, Phytologia 39: 221, 1978.

Ety.: From the Latin *persicinus*, "peach-colored," referring to the color of the flowers.

Syn.: *Masdevallia wageneriana* Lind. ex Lindl. var. *ecuadorensis* Braas, Orquideología 12: 30, 1977.
Ety.: Named for Ecuador, the country of origin.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish slender, erect, 5-10 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** dark green, erect, coriaceous, petiolate, 2-4 cm long including the petiole 0.5-1.5 cm long, the blade elliptical, subacute, 1.2-2 cm wide, the base cuneate into the slender petiole. **Inflorescence** a solitary flower borne by a suberect to horizontal, slender peduncle 3-3.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 10-11 mm long; ovary 6 mm long; **sepals** microscopically pubescent within, the dorsal sepal yellow, dotted with red along the midvein, obovate, 8.5 mm long, 8 mm wide, connate 6 mm to the lateral sepals to form a cylindrical tube, the free portion broadly rounded, abruptly produced into a sharply retroflexed slender, straight, yellow-green tail with an orange apex, ca. 35 mm long, the lateral sepals yellow, suffused with pink, connate 10 mm into a transversely obovate lamina 12 mm long, 18 mm wide together, the broadly obtuse apices produced into deflexed tails similar to that of the dorsal sepal; **petals** yellow, oblong, 5 mm long, 1.3 mm wide, the truncate apex obscurely denticulate, the lower margin callous with a slender, acute, deflexed tooth from the lower third; **lip** oscillating, yellowish white with purple dots, oblong, sigmoid in profile, 6 mm long, 1.5 mm wide, narrowed toward the reflexed, narrowly obtuse, purple apex, the margins decurved with minute, vestigial wings near the middle, the base rounded, convex, flexibly hinged beneath; **column** white, marked with red-purple, semiterete, 5 mm long, the foot short with a slender, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. ca. 1600 m, June 1974, collected by W. Teague, cultivated near Medellín, Colombia, *R. Escobar 1479* (JAUM); same collection, cultivated by M. & O. Robledo at La Ceja, Colombia, 20 Jan. 1978, *C. Luer 2286* (Holotype: SEL); same collection, cultivated by A. Andreetta in Cuenca, 16 Feb. 1978, *C. Luer 2595* (SEL); Río Dos Hermanos, Valle de Zamora, alt. 1500 m, collected by A. Andreetta, cultivated at Paute, 16 May 1988, *C. Luer 13377* (MO); between Vilcabamba and Yangana, alt. 2000 m, Feb. 1993, *W. Scheeren* (MO).

Along with several others, this little species is apparently endemic in the valley between Loja and Zamora where it was first discovered by Walter Teague. It was the only species of the subsection *Oscillantes* with a deep, cylindrical sepaline tube until the discovery of *M. castor* in Peru. The color of the tube of the former is a delicate peach. Deep within the tube is the narrowly oblong lip with extremely minute lateral wings that are barely visible with a strong hand lens.

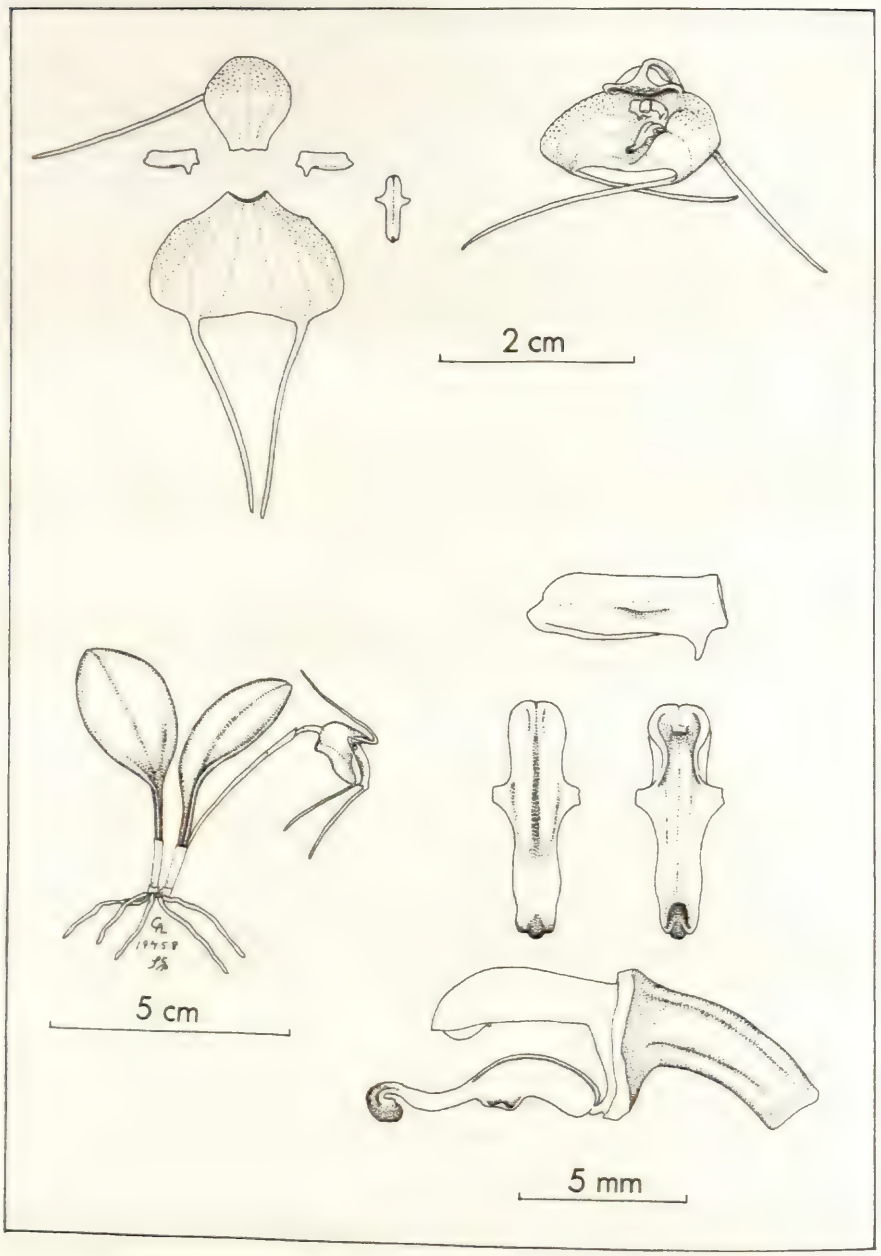


Plate 488. Masdevallia pollux

Masdevallia phasmatodes Königer, Die Orchidee 30: 197, 1979; emend. 36: 87, 1985.

Ety.: From the Greek *phasmatodes*, "ghostlike," in allusion to the specter suggested by the white flower.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls blackish, slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-10 cm long including the petiole 1.5-3 cm long, the blade elliptical-obovate, subacute to obtuse, 1.5-2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary, showy flower borne by an erect, slender peduncle 6-6.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 14 mm long; pedicel 13 mm long; ovary 6-7 mm long, black, arcuate, verrucose; **sepals** white, with minute, pink verrucosities within, and suffused with red along the midveins toward the base, the dorsal sepal broadly ovate, 11 mm long, 10 mm wide, connate to the lateral sepals for 3 mm to form a widely expanded flower, the apex obtuse, contracted into a slender, white, reflexed tail 4-4.5 cm long, the lateral sepals broadly ovate, oblique, connate 16 mm into a broadly expanded lamina 18 mm long, 24 mm wide, the rounded apices contracted into slender, white tails 3.5-4 cm long; **petals** white, suffused with pink, more or less oblong, 3 mm long, 1.5 mm wide, the apex oblique with a prominent apiculum from the upper margin, the labellar margin with a longitudinal callus terminating in a broad, rounded process above the base; **lip** white, lightly dotted with red, oblong, 4 mm long, 1.5 mm wide, the sides revolute below the middle, the apex round and recurved with a dark purple callus just above the margin, the disc tall and convex in the lower two-thirds, the base rounded, narrowly hinged beneath; **column** white, dotted with red, semiterete, longitudinally winged, 4.5 mm long, the foot obsolescent on the apex of the ovary, with a thin, incurved extension.

PERU: **Amazonas**: Prov. of Bongará, forest between Chachapoyas and Pomacochas, alt. 2000 m, 2 Aug. 1978, *W. Königer, H. Königer, B. Würstle, J. Meza et al. K-31* (Holotype: SEL; Isotypes: K, M), same collection, cultivated by W. Königer in Munich, Germany, C. Luer illustr. 4067.

Masdevallia phasmatodes is rare in the area around Pomacochas in northern Peru where it is apparently endemic. An erect peduncle bears as high as the leaves a large, widely expanded, whitish flower with tiny red warts inside. From the center of the flower the large, winged column flanked by shorter, pointed petals, protrudes more or less horizontally above the passively motile lip that resembles a tiny snail.

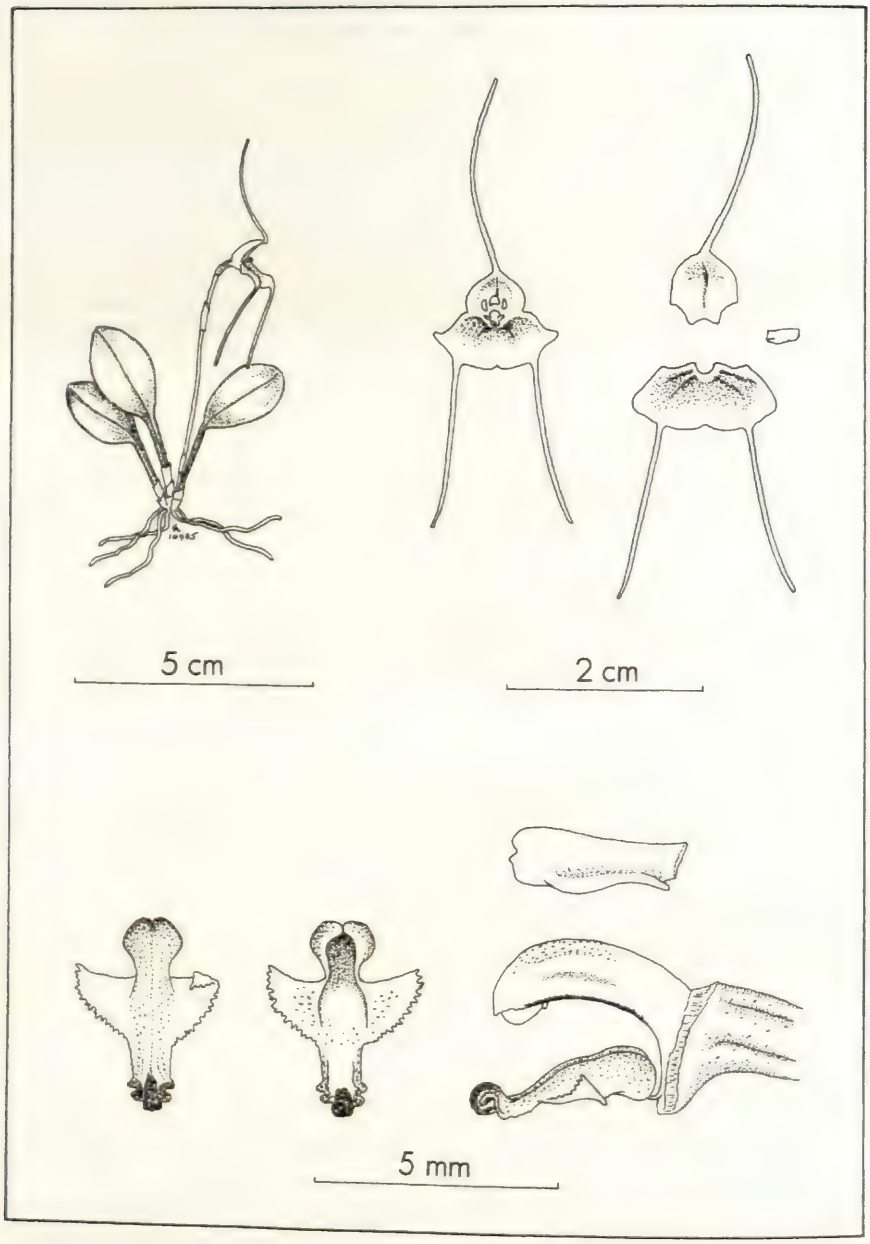


Plate 489. Masdevallia pteroglossa

Masdevallia pollux Luer & Cloes, sp. nov.

Ety.: Named for Pollux, one of the twin stars, in turn named for one of the sons of Leda.

Species haec *M. albellae* Luer & Teague similis, sed foliis latioribus, floribus majoribus, sepalis ad basim flavis rubrostriatis et brevipubescentibus distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, stout, ca. 1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, long-petiolate, 3-5 cm long including the 0.5-1.5 cm long, blackish petiole, the blade elliptical, obtuse, 2-2.3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 2.5-3.5 cm long, from low on the ramicaul; floral bract 9 mm long; pedicel 11 mm long; ovary 6 mm long; **sepals** cream, yellow toward the base with red along the veins, shortly pubescent, the dorsal sepal suborbicular, anteflexed, broadly obtuse to rounded, 11 mm long, 9.5 mm wide, connate to the lateral sepals for 5 mm to form a gaping cup, the apex reflexed, abruptly contracted into an acutely reflexed, slender, yellow tail 28 mm long, the lateral sepals connate 12 mm into a broadly expanded, transversely obovate, lamina 14 mm long, 20 mm wide, the transverse apices abruptly contracted into slender, descending tails 23 mm long; **petals** light yellow, oblong, 6 mm long, 2 mm wide, the apex obliquely truncate, obscurely lobulate, with a low, longitudinal callus along the lower margin ending in a short, narrowly triangular process a short distance above the base; **lip** yellow with the apex purple, oblong, slightly subsigmoid from the lateral view, 7 mm long, 1.5 mm wide, 2.5 mm wide across the lobes, 1.5 mm wide at the apex, with an acutely decurved apical lobule, the base thickened, cordate, flexibly hinged by a thin strap below; **column** semiterete, 5 mm long, with a thick foot 2 mm long.

PERU: **Amazonas**: between Lacallate and Pomacochas, alt. 2200 m, July 1998, *P. Cloes & M. Cloes 990914* (Holotype: MO), C. Luer illustr. 19458.
ECUADOR: **Zamora-Chinchipe**: above Zumba, cultivated at Ecuagenera, Gualaceo, Ecuador, Apr. 2001, *A. Hirtz 7655* (MO), C. Luer illustr. 20026.

This species and *M. castor*, found in northern Peru by Patrick and Martine Cloes, are superficially similar, hence the two were named for the mythological twins Castor and Pollux. *Masdevallia pollux* is distinguished by the dorsal sepal not being as deeply connate to the lateral sepals. The sepals are pale cream in color and yellow toward the base where the veins are suffused in red. The petals are also similar, being oblong with a descending tooth above the base. The lip of *M. pollux* is oblong with small marginal wings without a dilated apex.

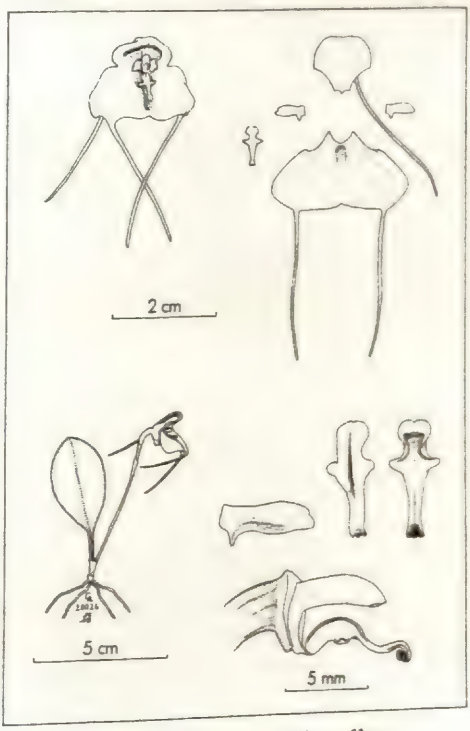


Plate 487. Masdevallia pollux

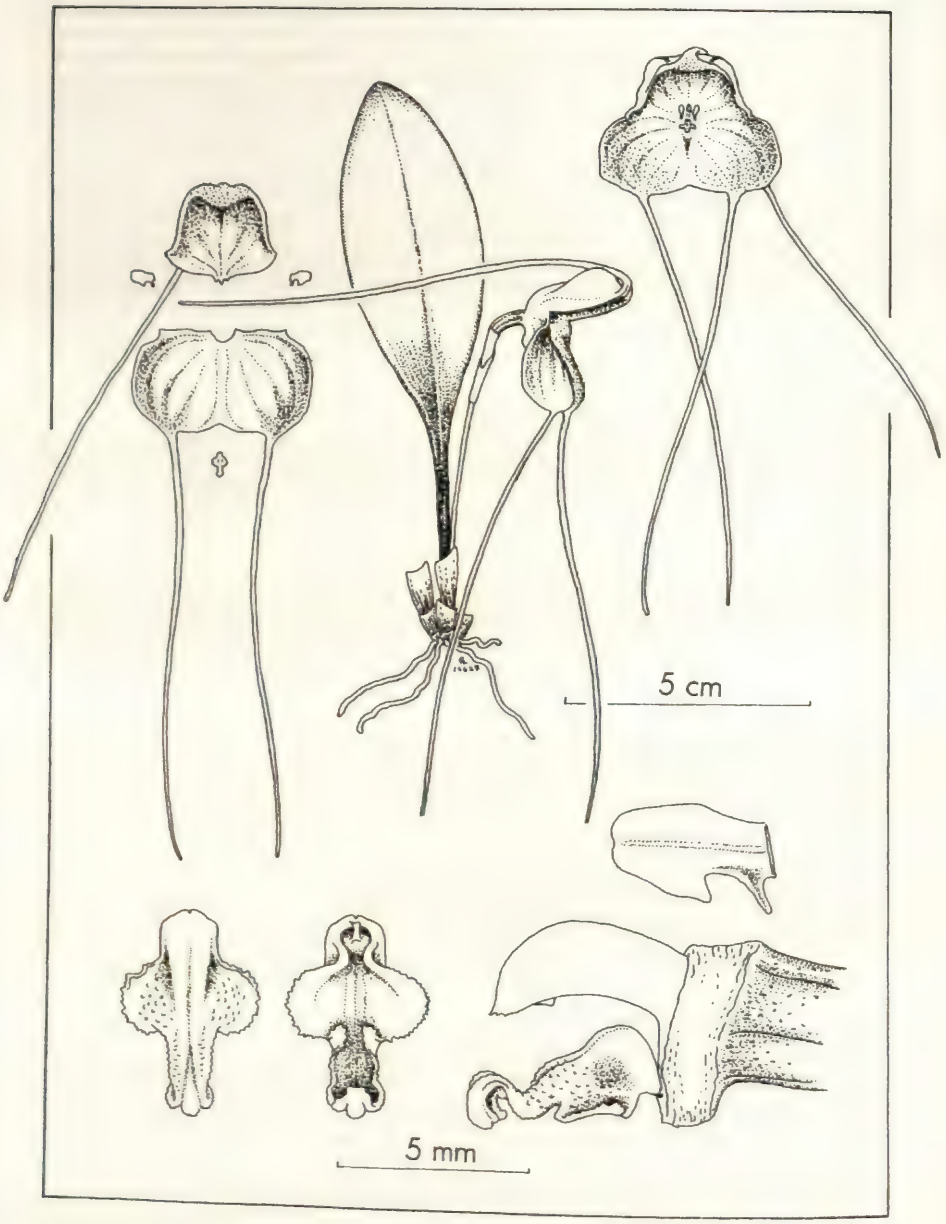


Plate 490. Masdevallia rhodehameliana

Masdevallia pteroglossa Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 81, 1920.

Ety.: From the Greek *pteroglossa*, "a winged tongue," referring to the winged lip.

Syn.: *Masdevallia xerophila* Lehm. & Kränzl, Repert. Spec. Nov. Regni Veg. 17: 431, 1921.
Ety.: From the Greek *xerophilos*, "dry loving," referring to a habitat.

Syn.: *Masdevallia wageneriana* var. *colombiana* Braas, Orquideología 12: 27, 1977.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 5-10 mm long, enclosed by 2-3 short, tubular sheaths. **Leaf** erect, coriaceous, 2-4.5 cm long including the petiole 0.5-2 cm long, the blade elliptical, obtuse, 0.9-1.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne by a suberect, slender peduncle 2.5-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 6-7 mm long; pedicel 8-11 mm long; ovary 4-5 mm long; **sepals** yellow, flecked with red, microscopically pubescent internally, the dorsal sepal ovate, 8-9 mm long, 6-7 mm wide, connate to the lateral sepals for 2.5-3 mm into a shallow, gaping, sepaline cup, the rounded apex abruptly contracted into a slender, slightly reflexed, yellow-green tail 20-23 mm long, the lateral sepals broadly obovate, 8-10 mm long, connate 5 mm into broad lamina 14-15 mm wide, the rounded apices contracted into slender tails 17-18 mm long; **petals** yellow-white, oblong, 3.5 mm long, 1.5 mm wide, with the apex truncate, obscurely lobulate, the labellar margin with a longitudinal winglike lamella ending in a short, retrorse tooth at the base; **lip** cream, speckled with red, more or less oblong, trilobed, 4 mm long, 1 mm wide, 3 mm wide across the lateral lobes, the lateral winglike, membranous, broadly uncinate, acute, retrorse, denticulate-erose on the forward margins, the apex narrowly obtuse and decurved, with 3 lightly verrucose, longitudinal dark purple calli, the base bulbous, concave beneath and attached to the column-foot; **column** white, suffused with purple, semiterete, 4 mm long, the foot thick, 1 mm long, with a short, slender, incurved extension.

COLOMBIA: **Antioquia**: without locality, *M. Madero s.n.* (Holotype destroyed at B; Neotype here designated: MO, *Luer 10405*); Munic. of Urrao, alt. 1700 m, Nov. 1976, *R. Escobar 1161* (holotype of var. *colombiana*: JAUM); same area, cultivated in Munich by W. Königer 10 Aug. 1984, *C. Luer 10405* (MO). **Cauca**: near Anserma Nueva, Alto de Robles, alt. 1600-1800 m, 27 Oct. 1883, *F.C. Lehmann 3281* (BM, BR, G, US); Palmira, Quebrada del Agua Clara, alt. 1800 m, Nov. 1877, *F. C. Lehmann 125* (holotype of *M. xerophila*: W); Alto Militar, collected by Amalia Lehmann de Sarria, cultivated in Popayán 21 Oct.1982, *C. Luer 8174* (SEL).

This little species, known only from the Western Cordillera of Colombia, is related to the slightly larger-flowered, longer-tailed *M. wageneriana*, which is endemic in the coastal mountains of northern Venezuela. *Masdevallia pteroglossa* is one of the numerous discoveries by the mysterious collector "Madero," described by Schlechter, and lost in the destruction of the herbarium at Dahlem (Berlin).

The tail of the dorsal sepal of *M. pteroglossa* commonly stands erect, while the long tail of the dorsal sepal of *M. wageneriana* is usually acutely reflexed. The petals of both species possess a winglike lamella along the labellar margin, that of *M. pteroglossa* ending in a small tooth at the base, that of *M. wageneriana*, without a tooth. An even greater difference is the shape of the thin, lateral, winglike lobes of the lips. The lobes of *M. pteroglossa* are broadly uncinate and acute, while those of *M. wageneriana* are broadly rounded.

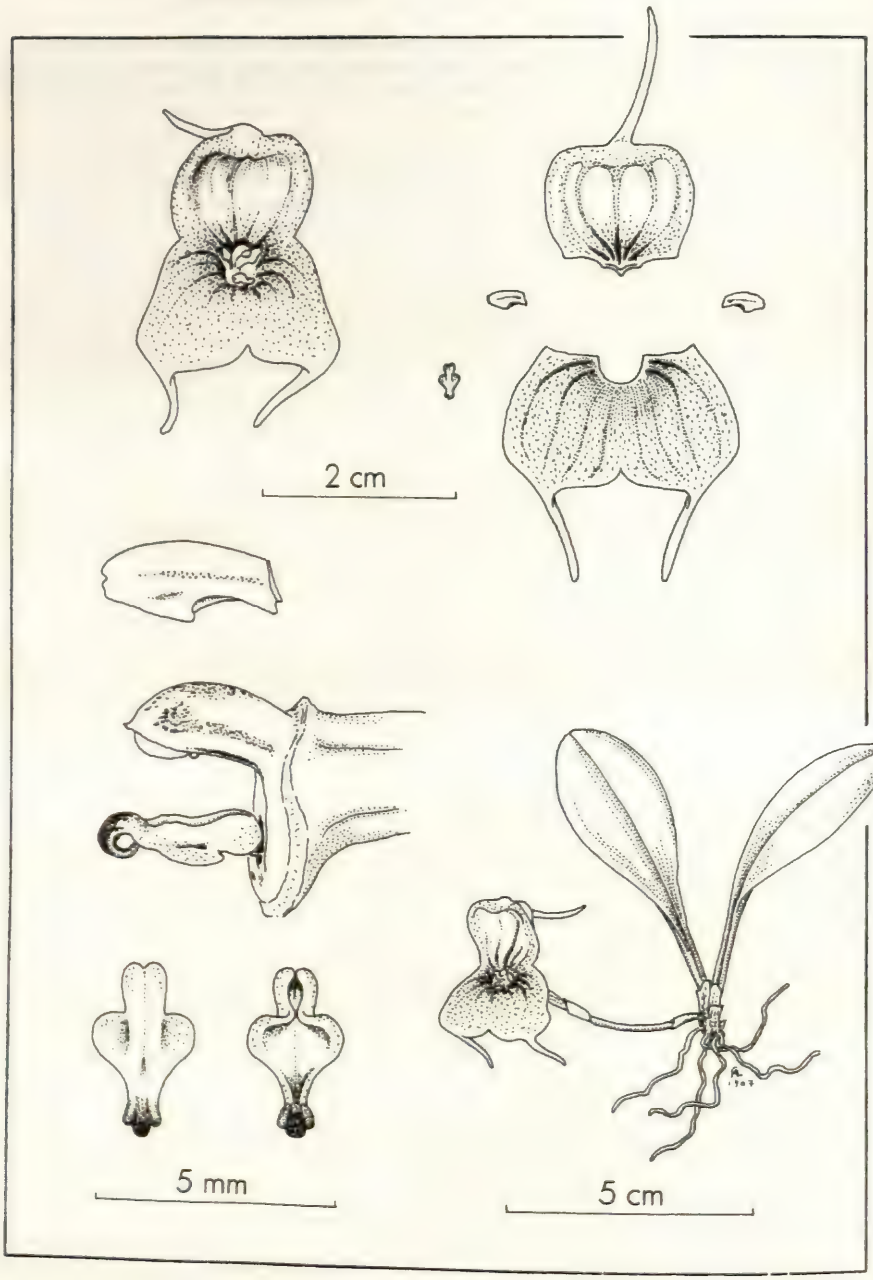


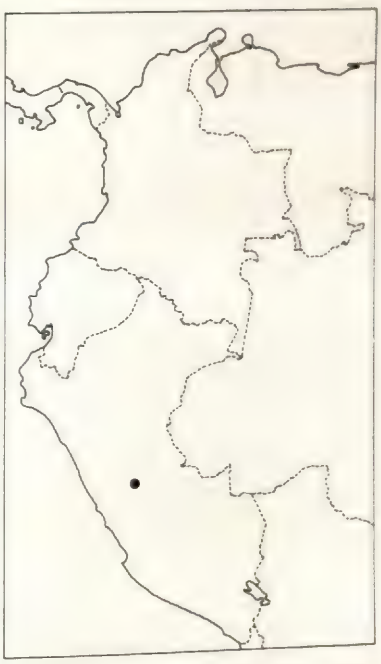
Plate 491. Masdevallia rodolfoi

Masdevallia rhodehameliana Luer, Amer. Orchid Soc. Bull. 62: 1166, 1993.

Ety.: Named in honor of William Ames Rhodehamel who obtained and cultivated this species, and submitted it for identification.

Plant large for the subsection, presumably epiphytic, caespitose; roots fleshy. Ramicauls erect, stout, blackish, 1.5-2 cm long, enclosed by 2-3 loose, blackish, tubular sheaths. **Leaf** erect, thickly coriaceous, suffused with purple, 6-10 cm long including a petiole 1.5-2 cm long, the blade elliptical, obtuse, 2.3-3.2 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3-4 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, oblique, 13 mm long; pedicel 15 mm long; ovary 8-9 mm long; **sepals** rose, suffused with darker rose, rose-purple papillose within, fleshy, the dorsal sepal ovate-subquadrate, concave, 15-25 mm long, 18-22 mm wide, connate to the lateral sepals for 10-11 mm to form a broad, gaping flower, the apex transverse, abruptly contracted into an acutely reflexed, slender, pale rosy-green tail 9-10 cm long, the lateral sepals obliquely suborbicular, connate 12-16 mm into a broad lamina 15-20 mm long, 30-38 mm wide, the rounded apices abruptly contracted into tails similar to that of the dorsal sepal; **petals** white, suffused with rose, cartilaginous, oblong, 4 mm long, 1.5-2.5 mm wide, the apex subtruncate, the labellar margin thick with a subacute, retrorse wing near the middle, and a narrow tooth 1 mm long above the base; **lip** rose, mottled and suffused with darker rose-brown, verruculose, trilobed, 5.5 mm long, 3.5 mm wide across the lateral lobes, the lateral lobes near the middle, rounded, erose, the apical lobe oblong, 1.5 mm wide, sigmoid-decurved, with a thick, midline callus, the disc with a tall, rounded callus above the base, concave beneath, delicately hinged to the column-foot; **column** rose, semiterete, 5 mm long, the foot thick, 2.5 mm long.

PERU: **Pasco**: near Villa Rica, alt. 1950 m, May 1992, collected by Sr. José Campoverde, obtained by Hoosier Orchid Company from Dr. Isaias Rolando of Lima, Peru, cultivated at Hoosier Orchids, Indianapolis, IN, April 1993, by *William Rhodehamel 119A* (Holotype: MO), C. Luer illustr. 16627.



Masdevallia rhodehameliana is by far the largest species known in subsection *Oscillantes*. It was recently collected by José Campoverde in a botanically unexplored area not far from Lima. Plants were purchased by William Rhodehamel of Hoosier Orchid Company in Indianapolis from Dr. Isaias Rolando of Lima, Peru.

Among the "swivel-lip" species of *Masdevallia*, this species is a giant. The leaves are thick and dark greenish purple. From a comparatively short peduncle the flower is borne at a distance only about half the length of the blade of the leaf. The long sepaline tails trail downward a distance greater than to the base of the plant. The gaping, rose-colored flower is of a heavy texture and minutely purple-papillose inside. The petals and delicately balanced, three-lobed lip are small, although they are larger than those of any of its relatives.

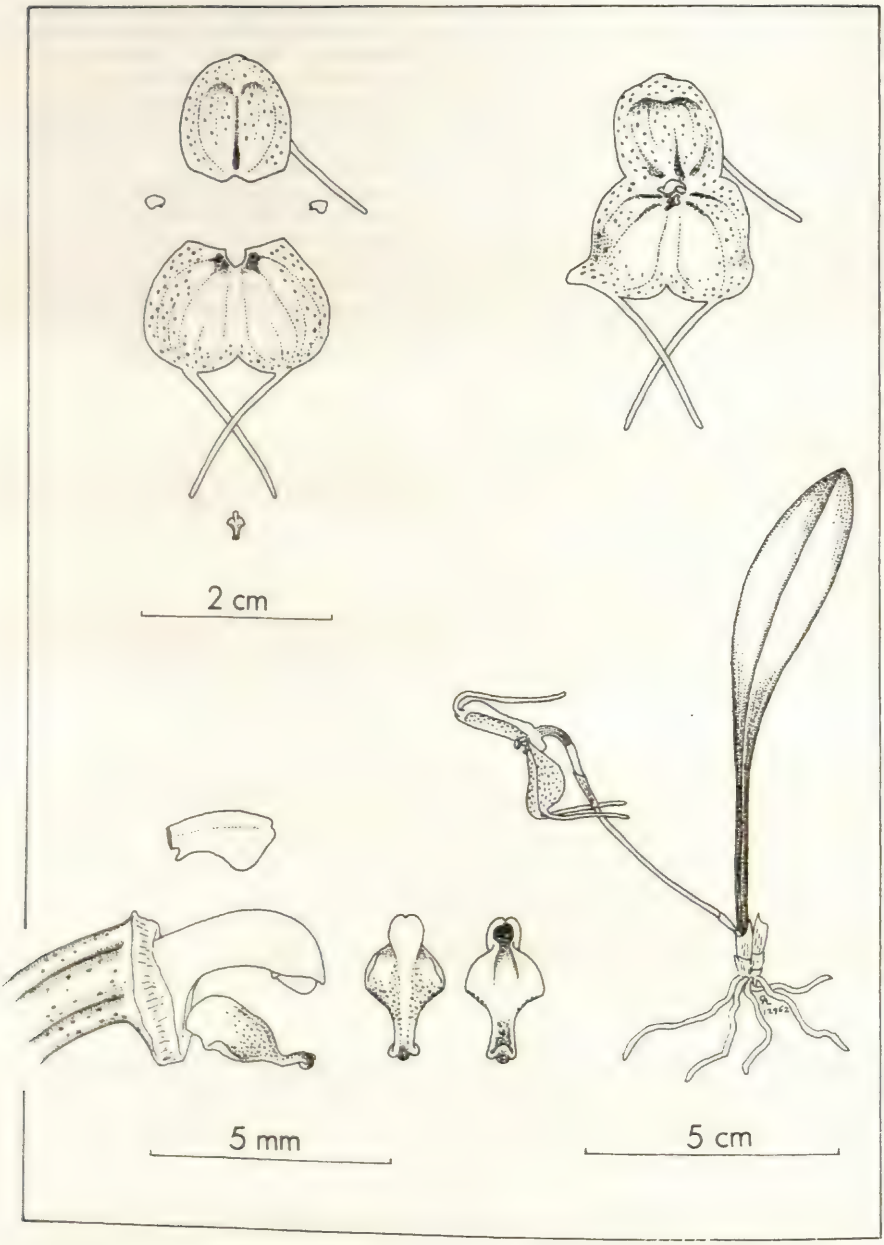


Plate 492. Masdevallia rubeola

Masdevallia rodolfoi (Braas) Luer, Phytologia 39: 227, 1978.

Bas.: *Masdevallia wageneriana* var. *rodolfoi* Braas, Orquideología 12: 23, 1977.

Ety.: Named in honor of Rudolf Stümpfle of Lima, Peru, who exported this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, dark green, 3-7 cm long including the petiole 1-2.5 cm long, the blade broadly elliptical, obtuse, 1.5-2.5 cm wide, the base cuneate into the blackish petiole. **Inflorescence** a solitary, showy flower, borne by a slender, more or less horizontal peduncle 1.5-2.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7 mm long; pedicel 11 mm long; ovary green, 7 mm long; **sepals** fleshy, yellow, suffused with red or purple along the veins toward the base, diffusely dotted with red cells within, the dorsal sepal transversely obovate, concave, 12 mm long, 15 mm wide expanded, the veins elevated within, connate to the lateral sepals for 6 mm to form a widely spread, shallow, sepaline cup, the apex rounded with the margin thickened, abruptly contracted into a reflexed, yellow-green tail ca. 15 mm long, the lateral sepals connate 9 mm into a transversely oblong-obovate lamina 13 mm long, 24 mm wide, the broadly obtuse apices abruptly contracted into reflexed tails 9 mm long; **petals** white, marked with purple along the midvein, oblong, 4 mm long, 1.5 mm wide, the apex subtruncate, obscurely bilobulate, the labellar margin with a longitudinal callus developed near the middle into an acute, retrorse finlike process; **lip** yellow, marked with purple, more or less oblong-trilobed, 3.5 mm long, 2 mm wide across the lobes, the margins of the middle third dilated into round, winglike, lateral lobes, narrowed in the distal third to the acutely recurved, narrowly obtuse apex with a medial callus, the basal third rounded, convex with revolute margins, concave beneath, delicately hinged from within; **column** yellow, flecked with red, semiterete, 4 mm long, the thick foot 3 mm long, with a filamentous, incurved extension.

PERU: **Junín**: San Ramón near Chanchamayo, alt. 2000 m, exported by R. Stümpfle, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 1638* (Holotype: JAUM); same collection, cultivated 4 Oct. 1977, *C. Luer 1907* (SEL); same area, exported by J. Meza, cultivated by W. Königer in Munich, *W. Königer s.n.* (SEL, Herb. H. Königer); west of San Ramón, alt. 2100 m, 24 July 1991, *J. Schoonen, P. Cloes & M. Arias 9216* (M). **Huánuco**: Muna, 7 Mar. 1959, *F. Woytkowski 5245* (MO).

A plant of this pretty little species, exported from Peru by Rudolf Stümpfle to Colombia and subsequently to Germany, was first described as a variety of the Venezuelan *M. wageneriana* by L. Braas. It is apparently endemic in the area of Chanchamayo of central Peru.

Masdevallia rodolfoi is distinguished by the small, dark green, broadly elliptical, obtuse, petiolate leaves. The short, more or less horizontal peduncle bears a comparatively large, widely expanded flower that faces outward. The sepals are yellow and studded within by red cells. All three tails are reflexed, those of the lateral sepals being less than one centimeter long.

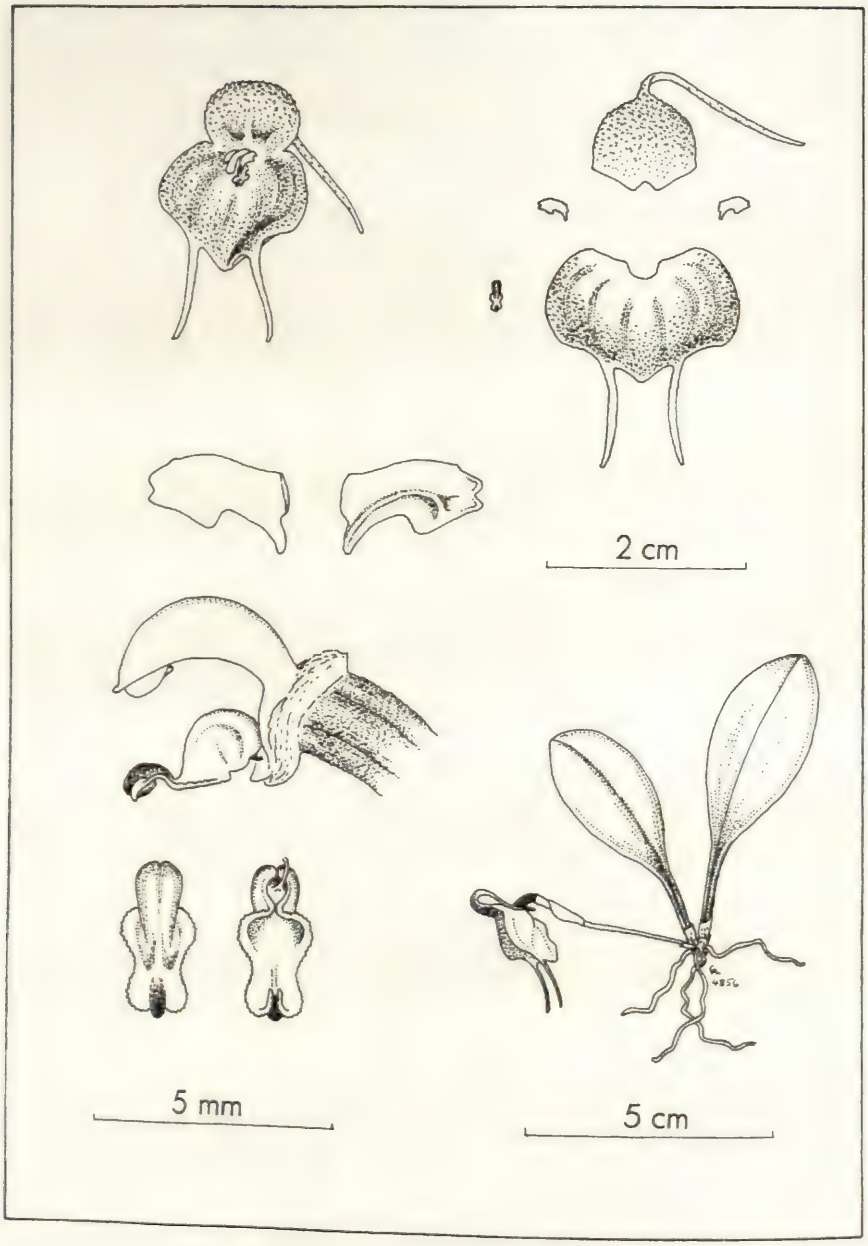


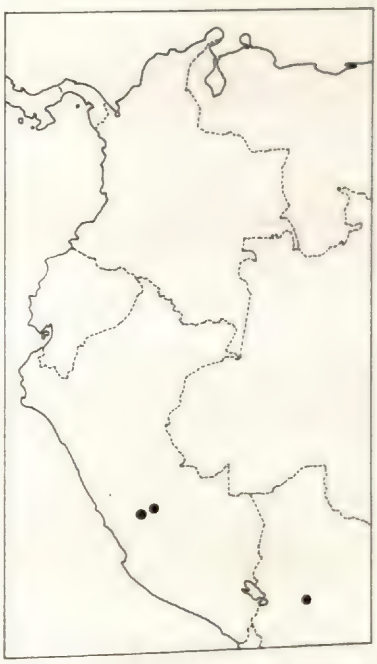
Plate 494. Masdevallia rubiginosa

Masdevallia rubeola Luer & Vásquez, Novon 1: 170, 1991.

Ety.: From the Latin *rubeola*, "measles," in allusion to the multiple, red spots on the sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 0.5-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, dark green, mottled with black beneath, 5-9 cm long including the petiole 2-3 cm long, the blade elliptical-obovate, subacute to acute, 1.5-2 cm wide, cuneate below into the blackish petiole. **Inflorescence** a single, more or less downward-facing flower, borne by a slender, suberect to subhorizontal peduncle 3-4 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 11 mm long; ovary 6 mm long; **sepals** yellow, diffusely dotted with red-brown, glabrous, but faintly verrucose within, the dorsal sepal broadly ovate to suborbicular, concave, 10-13 mm long, 11-14 mm wide, connate to the lateral sepals for 3.5-4 mm to form a shallow, gaping sepaline cup, the apex rounded, abruptly contracted into an acutely reflexed tail 20 mm long, the lateral sepals suborbicular, oblique, connate 8-10 mm to create a transverse lamina 10-14 mm long, 20 mm wide, the apices rounded, abruptly contracted into deflexed tails 15 mm long; **petals** yellow, obliquely oblong-obovate, 2 mm long, 1 mm wide, the apex obtuse, obscurely bilobed, the labellar margin prominently and broadly dilated above the middle, with a minute tooth above the base; **lip** yellow, dotted with brown, trilobed, 3 mm long, 1.5 mm wide across the middle lobes, narrowed in the distal third with the obtuse apex callous and acutely revolute, the lateral lobes thin, obtuse, expanded at the middle, the basal third narrow, thickened, convex, concave beneath, immovably attached to the column-foot; **column** semiterete, 3.5 mm long, the foot 1 mm long.

BOLIVIA: **La Paz**: Nor Yungas, epiphytic in forest north of Caranavi, alt. 1550 m, collected 26 Jan. 1988 by R. Vásquez, C. Luer et al., cultivated by P. and A. Jesup in Bristol, CT, Aug. 1988, *C. Luer 12952* (Holotype: MO).
PERU: **Junín**: Villa Rica, alt. 1800 m, collected by Campoverde, May 1993, *I. Rolando 007* (MO). **Pasco**: Oxapampa, near Poleorin, alt. 2200 m, 23 Nov. 2001, flowered in cultivation 29 Mar. 2002, *S. Dalström, C. Head, R. Burian & Saul Ruiz P. 2632* (SEL).



This species is most closely allied to the Peruvian *M. ortalis*, but also closely allied *M. rodolfoi*. It occurs uncommonly in the Andes of central Peru and northern Bolivia. The leaves are dark green, mottled with black on the back surface, and with black stems. The yellow flower, more or less facing downward, is diffusely dotted with red-brown, which is sometimes very pale. The lip is basically similar in all three species, but smaller in *M. rubeola*. The petals of *M. rubeola* are only one-fourth the size (half the dimensions) of the petals of the other two, and the lower margin is widely dilated above the middle instead of with an acute process near or below the middle.

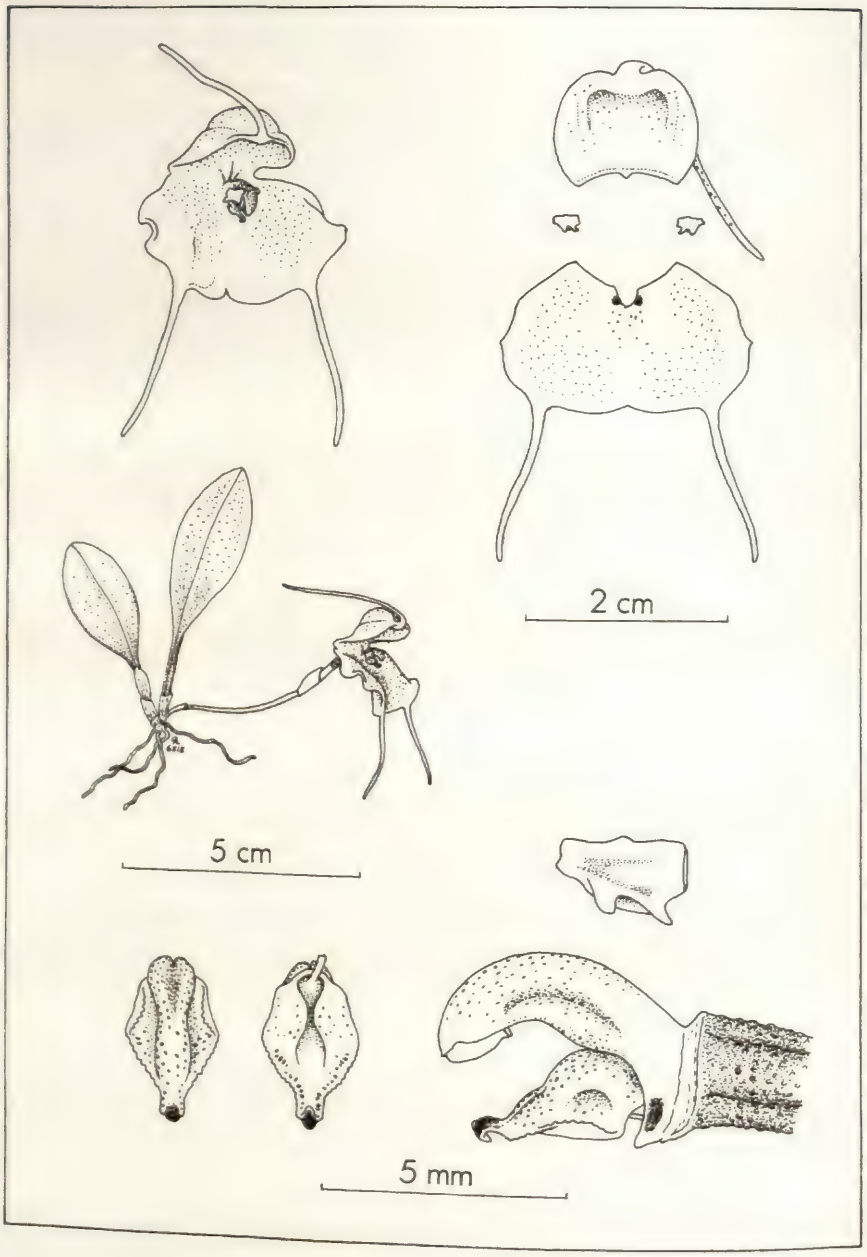


Plate 495. Masdevallia sulphurella

Masdevallia rubiginosa Königer, Die Orchidee 31: 178, 1980; emend. 36: 87, 1985.

Ety.: From the Latin *rubiginosus*, "rusty red," in reference to the color of the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 10-16 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, dark green, coriaceous, 4-7 cm long including the petiole 1-3 mm long, the blade elliptical, 1.5-2 cm wide, with the apex obtuse to rounded, the base cuneate into a blackish petiole 1-3 cm long. **Inflorescence** a solitary flower facing downward, borne by a slender, more or less horizontal peduncle 2-2.5 cm long, with a bract at the base, from low on the ramicaul; floral bract 7 mm long; pedicel 10 mm long; ovary blackish, 5 mm long; **sepals** dull brown externally, yellow but densely covered within by dark rusty-red, irregular verrucae, the dorsal sepal broadly ovate to suborbicular, 10 mm long, 10 mm wide, connate to the lateral sepals for 5 mm to form a shallowly cupped, widely spread flower, the rounded apex abruptly contracted into a slender, acutely reflexed tail 14 mm long, the lateral sepals connate for 12 mm into a transversely ovate synsepal 10 mm long, 19 mm wide, the oblique, transverse apices abruptly contracted into slender tails 10 mm long; **petals** rose, irregularly oblong, 3 mm long, 1.5 mm wide, with a curved carina on the external surface, the truncate apex bilobed, the labellar margin with an obtuse angle near the middle and a retrorse tooth at the base; **lip** rose, marked with red-purple, more or less oblong, 3.25 mm long, 1.5 mm wide, the margins expanded and minutely crenulate above the middle, the apical portion rounded with a longitudinal, midline callus at the decurved apex, the basal half markedly convex with the margins recurved below the middle to meet beneath, loosely hinged within the concave base by a slender strap; **column** red-purple, curved, semiterete, 4 mm long, the foot thick, 2 mm long.

PERU: **Amazonas**: Prov. of Bongará, forest between Chachapoyas and Pomacochas, alt. 2000 m, Aug. 1978, *B. Würstle, W. Königer, H. Königer & J. Meza W-4b* (Holotype: SEL; Isotypes: K, M, MO); same collection, cultivated by W. Königer in Munich, Germany, Nov. 1979, *C. Luer 4856* (SEL); between Pomacochas and Río Ripa, *P. Cloes 991028* (MO), C. Luer illustr. 19271.

ECUADOR: **Morona-Santiago**: between Cuenca and Limón, collected by Walter Teague in 1975, cultivated in San Francisco, CA, July 1988, *W. Teague 09* (MO). **Zamora-Chinchipe**: Quebrada Honda south of Yangana, alt. 1800 m, 6 Apr. 1982, collected by D. D'Alessandro & S. Dalström, cultivated at Colomborquídeas in Colombia, 9 Jan. 1984, *R. Escobar 3201* (SEL); epiphytic in cloud forest above Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström et al., 9596* (MO); above Zumba, collected by A. Andreetta, cultivated at Paute, 12 Jan. 1989, *C. Luer 13859* (MO).

This species occurs in southeastern Ecuador and in neighboring Peru. It is recognized by the rather broad, petiolate, dark green leaves and a short, horizontal peduncle with the widely expanded, flat flower with verrucose, rusty red-brown sepals, facing downwards. The lip dangles from the center of the flower.

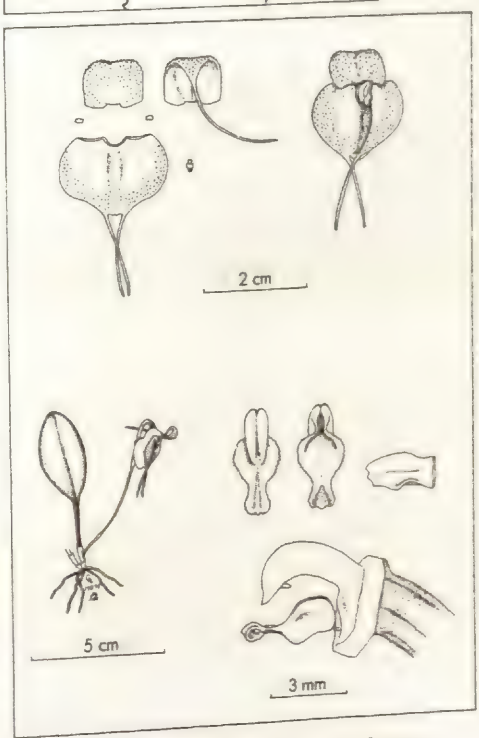


Plate 493. Masdevallia rubiginosa

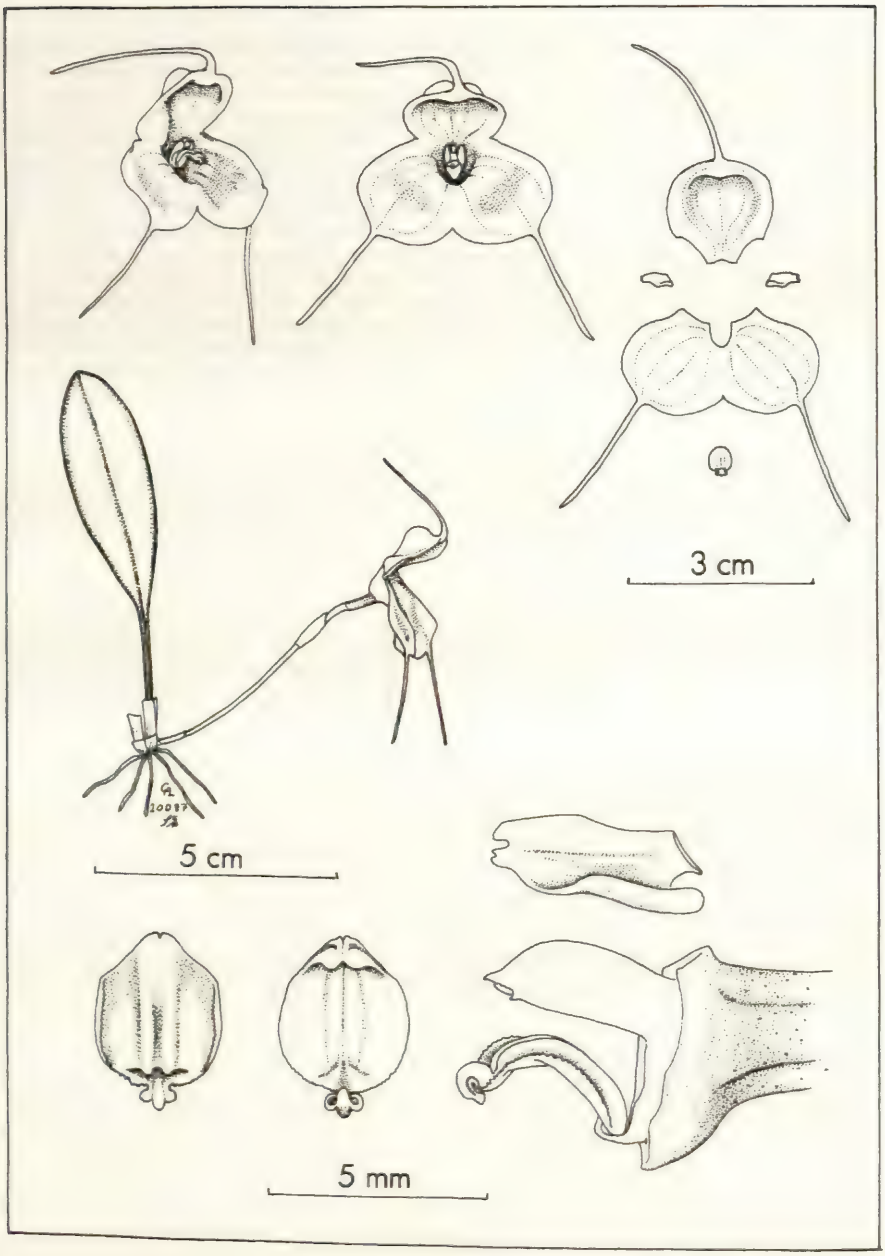


Plate 496. Masdevallia tricycla

Masdevallia sulphurella Königer, Arcula 4: 101, 1995.

Ety.: From the Latin *sulfurellus*, "a little yellow," referring to the color of the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 0.5-1 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, dark green, coriaceous, 3-4.5 cm long including the petiole ca. 1 cm long, the blade elliptical, subacute to obtuse, 1.4-2 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by a suberect to horizontal, slender peduncle ca. 3 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 10 mm long; ovary black, verrucose, 5 mm long; **sepals** light yellow, minutely speckled with black externally, minutely spotted with rose within, the dorsal sepal transversely or broadly ovate to suborbicular, concave, 12 mm long, 14 mm wide unexpanded, connate to the lateral sepals for 2 mm to form a gaping cup, the apex transverse, abruptly contracted into a reflexed, slender, green tail 2.5 cm long, the lateral sepals connate 10 mm into a transversely oblong lamina, 15 mm long, 26 mm wide, the transverse or rounded apices contracted into slender, white tails 1.7 cm long; **petals** yellow-white, more or less oblong, 2.5 mm long, 1.5 mm wide, the apex truncate, the labellar margin with a longitudinal callus with an erect, digitiform projection above the middle and terminating above the base with a similar but narrower projection; **lip** yellow, dotted with purple, elliptical, 2.3 mm long, 1.2 mm wide, the margins thin, minutely denticulate-erose, narrowed at the apex into a blackish purple, reflexed tip with a small callus, the disc tall, rounded and convex in the lower two-thirds, the base rounded, narrowly hinged into the concavity beneath; **column** yellow, dotted with purple, semiterete, arcuate, with the margins longitudinally winged, 5 mm long, 1.5 mm thick, the foot obsolescent on the apex of the ovary, with a thin, incurved extension.

PERU: **Amazonas**: Prov. of Bongará, Pomacochas, alt. 2000 m, Aug. 1978, cultivated in Munich, date of flowering unknown, *W. Königer, H. Königer, B. Würstle, J. Meza et al. K-3m* (Holotype: M; Isotypes: K, USM, Herb. H. Königer); apparently same collection, cultivated by W. Königer in Munich, Germany, 23 Sept. 1981, *W. Königer 28* (SEL), C. Luer illustr. 6518.

Masdevallia sulphurella is apparently endemic in the area around Pomacochas in northern Peru. Vegetatively similar to other allied species, the single flower is produced by a more or less horizontal peduncle. The light yellow sepals are connate into a gaping cup with the tail of the dorsal sepal acutely reflexed. The petals are distinctive with an erect pair of lobules on the longitudinal callus above the lower margin, one above the middle and the other above the base. The lip is much smaller than the arcuate column beneath which it is held. The lip has a tall, longitudinal convexity below the middle, and the slender hinge is attached into the corresponding concavity beneath.

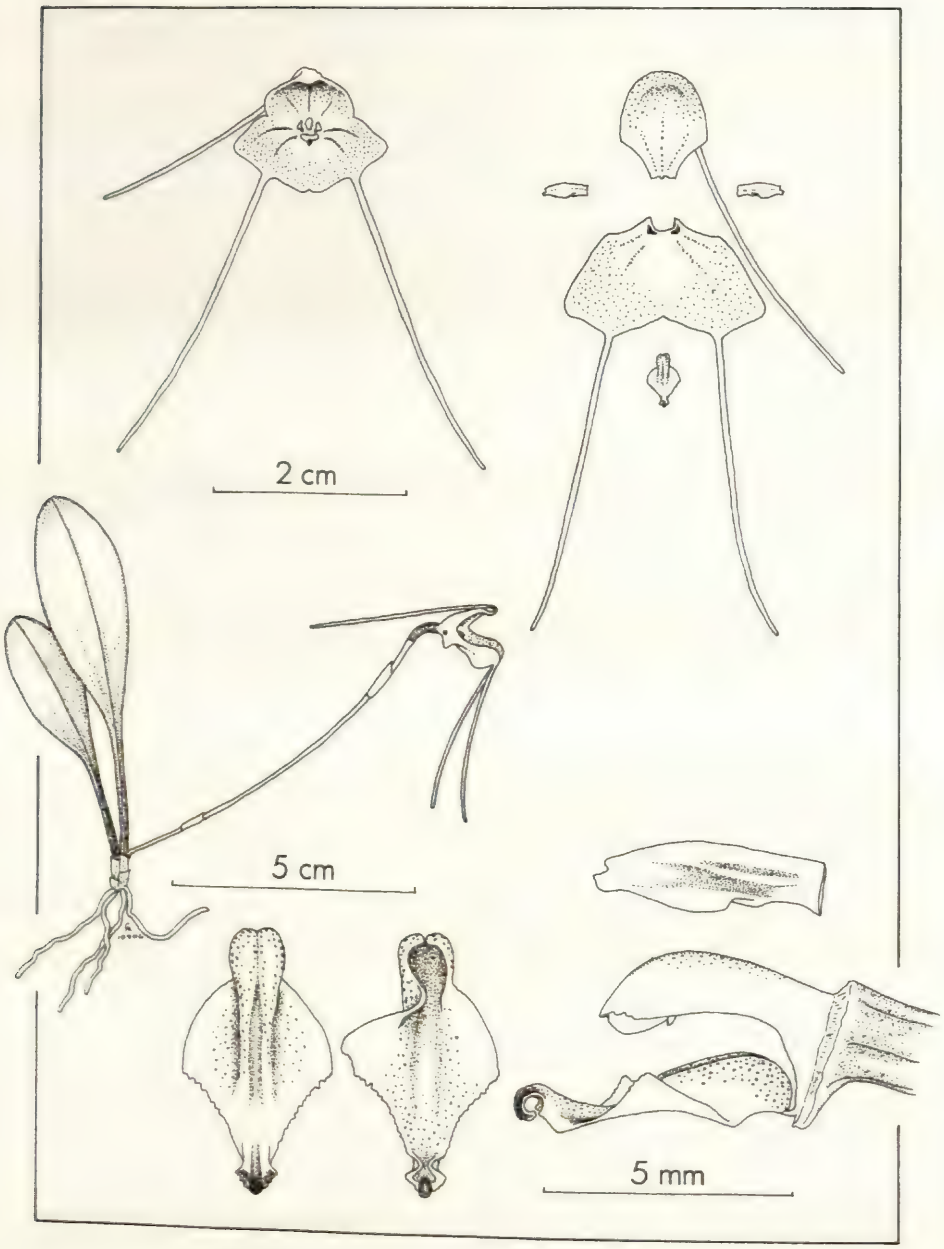


Plate 497. Masdevallia wageneriana

Masdevallia tricycla Luer, sp. nov.

Ety.: From the Latin, *tricyclus*, "with three circles," referring to the three sepals.

Species haec *M.* X*wubbenii* similis, sed sepalis suborcicularibus cum caudis brevibus, et petalorum processu crasso grandi differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 6-7 cm long including the petiole 1.5-2 cm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, subhorizontal to ascending peduncle, 4 cm long, with a bract at the base, from low on the ramicaul; floral bract 9 mm long; pedicel 13 mm long; ovary 6 mm long; **sepals** pale yellow suffused with rose, glabrous, the dorsal sepal suborbicular, concave, 17 mm long, 16 mm wide, connate to the lateral sepals for 6 mm to form a gaping, sepaline cup, the rounded apex abruptly contracted into a slender, deflexed, rosy tail 2.5 cm long, the lateral sepals suborbicular, rounded at the apex, 17 mm long, 17 mm wide, connate to each other for 8 mm, the apices contracted into tails 2 cm long, similar to that of the dorsal sepal; **petals** white, cartilaginous, oblong, the truncate apex tridentate, 5 mm long, 2 mm wide, with a thick, longitudinal carina along the labellar margin, winglike above the middle, produced into a thick, retrorse process above the base; **lip** rose, flecked with purple, suborbicular, 4 mm long, 3 mm wide, the lateral margins thin, erose, more or less lightly incurved, the disc shallowly channeled between a longitudinal pair of calli, concave below the apex that is abruptly constricted below a trilobulate callous extension of the lip by a thick midline callus flanked by revolute, marginal folds, the base obtuse, hinged from beneath; **column** white, semiterete, 4 mm long, the foot thick, 3 mm long with the incurved extension.

ECUADOR: **Zamora-Chinchipe**: Podocarpus, cultivated at Ecuagenera, Gualaceo, Ecuador, Dec. 2001, *A. Hirtz 7837* (MO), C. Luer illustr. 20087.

This species, apparently endemic in southeastern Ecuador, co-incidentally has many physical features that are similar to a natural hybrid, *M.* X*wubbenii*, found in coastal Vevezuela.

The flower of *M. tricycla* is characterized by three similar, round, peach-colored sepals with comparatively short tails. The dorsal sepal is deeply concave. The longitudinal callus of the petals is winglike above the middle, and thick below the middle ending in a stout process with a rounded apex. The disc of the lip is bicallous above the middle, the calli decurving into a cavity below an abrupt constriction constriction which isolates a prominent, recurved, midline callus on the apex. This callus is flanked by a pair of revolute, marginal folds.

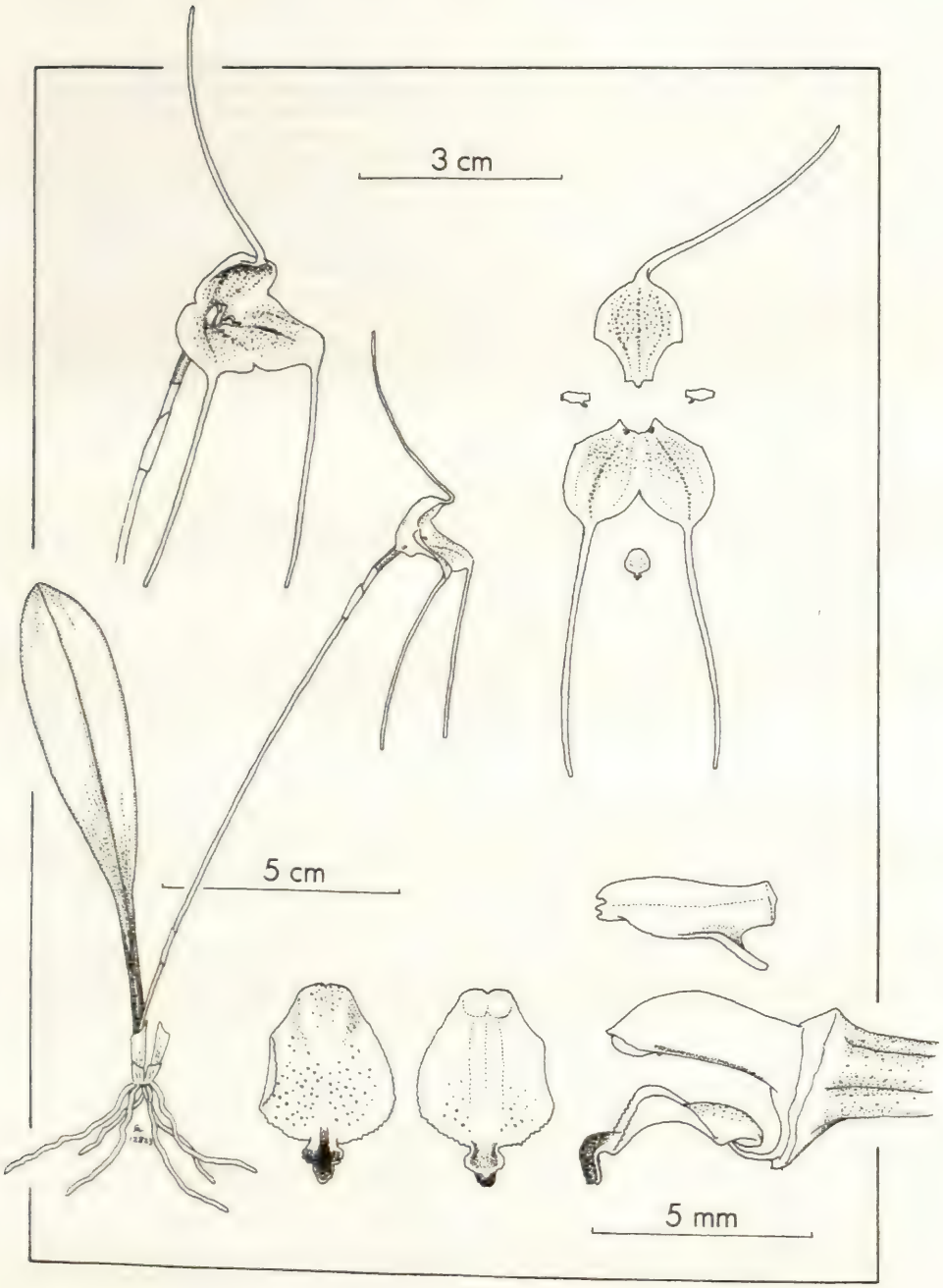


Plate 498. Masdevallia Xwubbenii

Masdevallia wageneriana Linden ex Lindl., Paxton's Fl. Gard. 3: 74, 1852.

Ety.: Named in honor of Hermann Wagener, traveler and botanist, who first dispatched plants of this species to Europe.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-8 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, dark green, more or less flecked with purple on the back, 2-5 cm long including the petiole 0.5-2 cm long, the blade elliptical, obtuse, 1-1.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne by a suberect to horizontal, slender peduncle 3-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 12-16 mm long; ovary 6 mm long; **sepals** light yellow or light orange, darker toward the center, often flecked or lightly veined in red-purple, microscopically pubescent internally, the dorsal sepal transversely ovate, concave, 10 mm long, 11 mm wide, connate to the lateral sepals for 3 mm into a shallow, sepaline cup, the rounded apex abruptly contracted into a slender, reflexed, yellow-green tail 3-4 cm long, the lateral sepals broadly obovate, oblique, 10 mm long, 10 mm wide, connate 6 mm into broad lamina 18 mm wide, the obtuse apices contracted into slender tails similar to that of the dorsal sepal; **petals** yellow-white, oblong, 4 mm long, 1.25 mm wide, subtruncate and obscurely tridentate at the apex, the labellar margin with a longitudinal winglike lamella without a basal process; **lip** pale yellow or greenish, speckled with red-purple, more or less ovate-trilobed, broadly expanded near the middle, 4.5 mm long, 3 mm wide across the lateral lobes, the lateral lobes membranous, obtuse to rounded, with minutely erose, undulate margins, narrowed above to the thick-margined apex with a midline, decurved callus, the base bulbous, concave beneath and delicately attached to the column-foot; **column** white, dotted with purple, semiterete, 4 mm long, the foot thick, 1 mm long, with a short, slender, incurved extension.

VENEZUELA: **Carabobo**: near the community of Carabobo, alt. 1800 m, July 1850, collected by H. Wagener, cultivated in Brussels, Belgium, by *J. Linden s.n.* (Holotype: K; Isotype: W); Carabobo, 1853, *H. Wagener 101* (W); Colonia Tovar, 1854-55, *A. Fendler 1372* (AMES, BR, K, W); Colonia Tovar, Feb. 1849, *Moritz 1731* (HBG, K, W). **Dist. Fed.**: Fila Maestra, road to Puerto Maya, alt. 2000-2200 m, 12 July 1963, *J.A. Steyermark 91547* (AMES, VEN); Junquito, alt. 1600-1800 m, collected by C. García, cultivated at Colomborquídeas, 20 Nov. 1981, *C. Luer 6721* (SEL). **Aragua**: Agua Fría, alt. 1800 m, collected by C. García, cultivated by M. & O. Robledo at La Ceja, Colombia, 16 Oct. 1977, *C. Luer 2054* (SEL). **Falcón**: Sierra de San Luis near Curimagua, alt. 1500 m, collected by J. Wubben, cultivated by W. & H. Königer in Munich, 2 Sept. 1982, *C. Luer 8127* (SEL). **Lara**: Cerro Guacamuco north of Siquisique, alt. 1400 m, Oct. 1948, *J. Renz 4900* (Herb. J. Renz). **Táchira**: between Zumbador and Engaravega, collected by J. Wubben, cultivated by W. & H. Königer, 10 Aug. 1984, *C. Luer 10406* (MO).

Masdevallia wageneriana, endemic in the mountains of northern Venezuela, is the first of the species with an oscillating lip to be described. According to Reichenbach, Moritz first collected this species in 1849, but it was Wagener's living collection sent to Linden the following year that was described by Lindley.

The delicately hinged, balanced lip was appreciated by neither Lindley nor Reichenbach. From the exposed center of the little, gaping, sepaline cup the tiny, complicated lip protrudes. It is balanced in a horizontal position by a thin, straplike extension from the tip of the column-foot to within the deeply concave, bulbous base of the lip.

A very closely allied species, *M. pteroglossa*, with acute, retrorse, lateral lobes of the lip, is endemic in the Western Cordillera of Colombia.

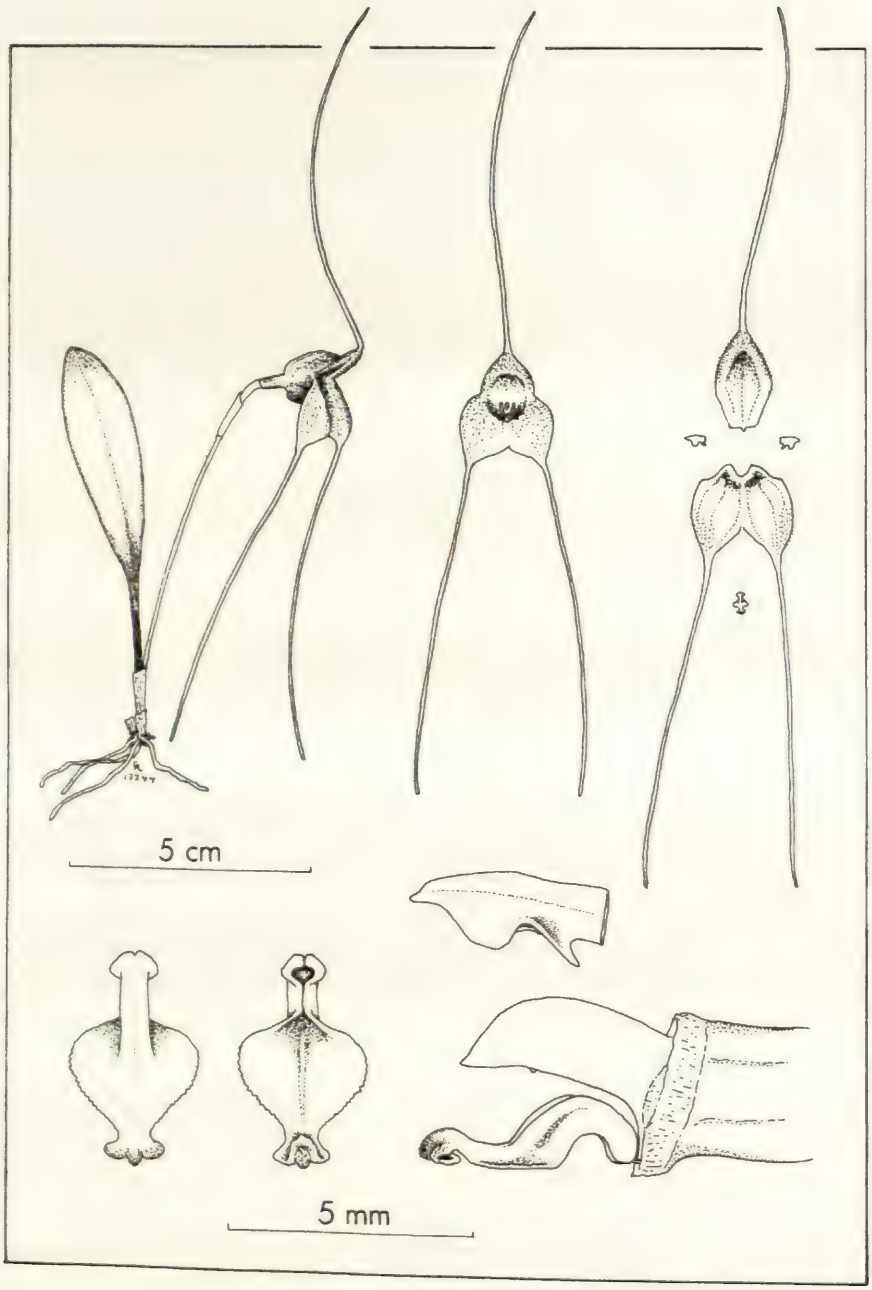


Plate 499. Masdevallia zongoënsis

Masdevallia Xwubbenii Luer, Amer. Orchid Soc. Bull. 56: 1141, 1987.

Ety.: Named in honor of J.M. Wubben of Rading, The Netherlands, who first discovered and cultivated this plant.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 4-9 cm long including the petiole 1-3 cm long, 1.5-2.3 cm wide, the base gradually narrowed into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle, 6-10 cm long, with a bract at the base, from low on the ramicaul; floral bract 8-9 mm long; pedicel 13-17 mm long; ovary 5-6 mm long; **sepals** yellow, flecked with red, glabrous, the dorsal sepal obovate, 15 mm long, 11-13 mm wide, connate to the lateral sepals for 6-8 mm to form a gaping, sepaline cup, the rounded apex abruptly contracted into a slender, erect, yellow-green tail 3.5-5 cm long, the lateral sepals ovate, obtuse, oblique, 15-17 mm long, 7-9 mm wide, connate to each other for 6-8 mm, with a purple-brown spot at the bases, the apices contracted into tails similar to that of the dorsal sepal; **petals** white, cartilaginous, oblong, the truncate apex tridentate, 4-5 mm long, 1-1.5 mm wide, with a longitudinal carina along on the labellar margin, winglike above the middle, produced into a slender, retrorse process above the base; **lip** white, flecked with purple, obovate, 4.5 mm long, 3 mm wide, the lateral margins thin, erose, more or less lightly incurved, the disc shallowly channeled, the apex constricted into a deflexed, verrucose, blackish lobule ca. 0.5 mm long, the base subcordate, hinged from beneath; **column** white with a thin red margin, semiterete, 4 mm long, the foot thick, 1 mm long, with a slender, incurved extension.

VENEZUELA: **Aragua**: epiphytic in forest east of Colonia Tovar, alt. 2200 m, Feb. 1980, collected by J. M. Wubben, cultivated by J & L Orchids, Easton, CT, *C. Luer 12823* (Holotype: MO).

This taxon, morphologically midway between two well-known sympatric species, was suspected of being a natural hybrid when first seen. An artificial hybrid between *M. triangularis* and *M. wageneriana* has produced progeny identical to *M. wubbenii*.

Masdevallia X*wubbenii* is recognized by the gaping, yellow, sepaline cup flecked with red, similar to that of the smaller *M. wageneriana*. The size of the flower is the same, if not a trifle larger, than that of *M. triangularis*. The sepals are obtuse, neither acute as they are in *M. triangularis* nor transverse as they are in *M. wageneriana*, and the long, slender tails are sometimes longer than those of either *M. triangularis* or *M. wageneriana*.

The petals are winged along the labellar margin with a slender process above the base, suggesting a closer relationship with subsection *Oscillantes* than to subsection *Caudatae*. The "toothlike" process is broad and thick in species of subsection *Caudatae*. The labellar carina of some plants of *M. triangularis* show a slight winglike formation above the middle, a feature so prominent in *M. wageneriana*. See the accompanying illustration of *M. triangularis*. The apex of the petal, however, is tridentate as it is in *M. triangularis*.

The lip is held horizontally, seemingly balanced and oscillating on a slender pivot, as is the case in all the species of subsection *Oscillantes*. The attachment of the slender extension from the column-foot to the lip is not within a cavity as it is in *M. wageneriana*, but attached to the thickened undersurface as it is in *M. triangularis*. This form of attachment, however, is seen in a few species of subsection *Oscillantes*, e.g., *M. dalessandroi*. The outline of the lip with the decurved, verrucose, apical lobule is similar to both *M. triangularis* and *M. wageneriana*. The thin, lightly incurved, lateral margins suggest a closer relationship to *M. wageneriana*.

BINOMIALS PUBLISHED IN *MASDEVALLIA* ATTRIBUTABLE TO SUBSECTION *SALTATRACES*

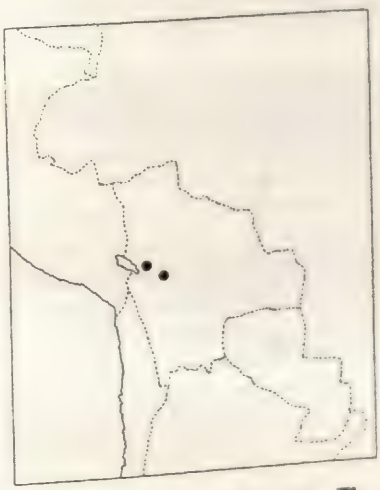
M. agaster Luer ..... Plate 501.
M. ampullacea Luer ..... Plate 502.
M. anemone Luer ..... Plate 503.
M. angulifera Rchb.f. ex Kraenzl. ..... Plates 504, 505.
M. aurea Luer ..... Plate 506.
M. calosiphon Luer ..... Plate 507.
M. chuspipatae Luer & Teague ..... Plate 508.
M. constricta Poepp. & Endl. ..... Plates 509, 510.
M. eurynogaster Luer & Andreetta ..... Plate 511.
M. filaria Luer & Escobar ..... Plate 512.
M. fuchsii Luer ..... Plate 513.
M. hirtzii Luer & Andreetta ..... Plate 514.
M. xligiae Luer & Escobar ..... Plate 515.
M. limax Luer ..... Plate 516.
M. marthae Luer & Escobar ..... Plate 517.
M. maxilimax (Luer) Luer ..... Plate 518.
M. mendozae Luer ..... Plate 519.
M. morochoi Luer & Andreetta ..... Plate 520.
M. xmystica Luer ..... Plate 521.
M. notosibirica Maekawa & Hashimoto ..... Plates 522, 523.
M. olivacea Kraenzl. = **M angulifera**
M. os-draconis Luer & Escobar ..... Plate 524.
M. rex Luer & Hirtz ..... Plates 525, 526.
M. ricii Luer & Vásquez ..... Plate 527.
M. saltatrix Rchb.f. ..... Plate 528.
M. santiagoörum Königer = **M. aurea**
M. saulii Königer = **M. fuchsii**
M. siphonantha Luer ..... Plate 529.
M. strobelii Sweet & Garay ..... Plate 530.
M. tubata Schltr. ..... Plate 531.
M. urosalpinx Luer = **M. constricta**
M. ventricularia Rchb.f. ..... Plate 532.
M. ventricularia var. *brevicaudata* Kraenzl. = **M. ventricularia**
M. ventricularia var. *longicaudata* Lehm. = **M. filaria**
M. ventricularia subsp. *filaria* (Luer & Escobar) Luer = **M. filaria**

Masdevallia zongoënsis Luer & Hirtz, Lindleyana 10: 235, 1995.

Ety.: Named for the Zongo valley where this species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, dark green, 6-7 cm long including the petiole 1.5-2 cm long, the blade elliptical-obovate, subacute, 1.5 cm wide, cuneate below into the blackish petiole. **Inflorescence** a single gaping flower, borne by a slender, suberect peduncle 3-4 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 11 mm long; ovary 6 mm long; **sepals** dark yellow, minutely verrucose externally, diffusely red-brown papillose-pubescent within, the dorsal sepal elliptical, concave centrally, 18 mm long, 11 mm wide, connate to the lateral sepals for 6 mm to form a broad sepaline cup, the apex obtuse, contracted into a slender tail 7-8 cm long, the lateral sepals ovate, oblique, 16 mm long, 11 mm wide, connate 10 mm to create a concavity below the middle, the apices subacute, contracted into slender tails 7 cm long; **petals** yellow, suboblong, 4 mm long, 1-1.5 mm wide, the apex narrowed, acute, the labellar margin with a winglike lamella, broadly dilated above the middle, and with an acute, retrorse process above the base; **lip** red-brown, trilobed, 4.5 mm long, 2.75 mm wide across the middle lobes, the middle lobes broadly rounded, denticulate-erose, narrowed toward an isthmus below the apex, the apex dilated, verrucose and acutely reflexed, the basal third of the lip narrowed with the margins acutely revolute to form a tube, the base bilobed, deeply concave, hinged from within to the column-foot; **column** semiterete, 4 mm long, thick, the foot thick, 0.5 mm long.

BOLIVIA: **La Paz**: Prov. of Murillo, epiphytic in forest along Río Zongo, alt. ca. 2500 m, collected Aug. 1991 by A. Hirtz et al., cultivated in Quito, Ecuador, 1993, by *A. Hirtz 5848* (Holotype: MO), C. Luer illustr. 17744. Prov. of Nor Yungas, Parqué Nacional Cotapata, Estación Biologica de Tunquini, alt. 1550 m, 16 July 2000, *Kromer T. & Acebey C. 1294* (LPB, MO).



This species and *M. rubeola* are the only two members of subsection *Oscillantes* known to occur in Bolivia. *Masdevallia zongoënsis* is found in wooded valleys in northcentral Bolivia in the Nor Yungas and the spectacular Zongo valley.

Although vegetatively similar to many other medium-sized species with black stems, this species is distinguished by dark yellow sepals, densely papillose-verrucose within, and with long, thin tails. The callus of the petals is broadly dilated above the middle and produced into an acute point above the base. The lip is broadly winged, tubular below the middle, and with the apex verrucose and acutely recurved.

15 Sepals more than 30 mm long ..... *M. constricta*
15' Sepals less than 25 mm long 16

16 Sepaline tube with orifice bent forward 90° beyond the constriction..... *M. tubata*
16' Sepaline tube not bent forward 90° beyond the constriction..... 17

17 Petals without incurved, basal process; lip oblong with acute marginal folds near the middle ..... *M. ampullacea*
17' Petals with incurved, basal process; lip ovate with entire margins ..... *M. chuspipatae*

Sepals with color other than orange or yellow

18 Sepals obtuse, tailless 19
18' Sepals caudate 20

19 Sepals connate 65-75% of the length, with apices subacute..... *M. angulifera*
19 Sepals connate 85-95% of the length, with apices broadly obtuse..... *M. siphonantha*

20 Sepals with the tails curled ..... *M. notosibirica*
20' Sepals with the tails not curled..... 21

21 Sepaline tube tubular, not ventricose..... *M.* X*mystica*
21' Sepaline tube ventricose..... 22

22 Lip oblong without marginal calli 23
22' Lip subpandurate with a pair of marginal calli near the middle..... *M.* X*ligiae*

23 Sepaline tails reflexed, subclavate..... *M. saltatrix*
23' Sepaline tails neither reflexed nor subclavate..... 24

24 Sepaline tails as long as or longer than the tube..... 25
24' Sepaline tails about half as long as the tube..... 27

25 Sepaline tube nearly as broad as long; petal with large basal process..... *M. eurenogaster*
25' Sepaline tube longer than broad; petal with inconspicuous process..... 26

26 Sepals with free parts elongated with revolute sides..... *M. os-draconis*
26' Sepals with free parts not elongated with revolute sides..... *M. filaria*

27 Sepaline tails reflexed ..... *M. ventricularia*
27' Sepaline tails incurved..... *M. marthae*

SUBSECTION *SALTATRICES*

Masdevallia subgenus **Masdevallia** section **Masdevallia** subsection **Saltatrices** (Rchb.f) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 36, 1986.

Bas.: *Masdevallia* sect. *Saltatrices* Rchb.f., Linnaea 41: 10, 1877.
Type: *Masdevallia saltatrix* Rchb.f.
Ety.: From the Latin *saltatrix*, "a dancer," in allusion to the appearance of the flower.

Syn.: *Masdevallia* sect. *Tubulosae* Rchb.f., Otia Bot. Hamburgensia 1: 14, 1878.
Type: *Masdevallia ventricularia* Rchb.f.
Ety.: From the Latin *tubulosus*, "like a tube," referring to the elongated sepaline tube.

This taxon was first indicated as a "section," an unnamed infrageneric category, by Reichenbach when he described *M. saltatrix*. At the same time, he also indicated *Saltatrices* for the "section" for *M. molossus*. The following year, he indicated "section" *Tubulosae* for *M. ventricularia*. Both *M. saltatrix* and *M. ventricularia* and other similar species were included in subsection *Saltatrices* proposed in *Masdevallia* in 1986. The subsection is based solely upon the distinctive key character of deeply connate sepals into a sepaline tube that is often, but not always ventricose.

The habit is caespitose, not unlike that of other species of the section; the peduncles are terete and always single-flowered; the sepals are deeply connate into a cylindrical tube that is much longer than the obtuse to abruptly caudate, free portions that often are more or less similar to each other. The tube is usually ventricose below or near the middle and constricted to some degree near or above the middle. The petals and lip are deep within the tube out of sight. The petals are callous along the labellar margin with or without a well-developed process at or above the base. The lips are simple with the disc either featureless or with a pair of low, longitudinal calli. The lip is distinctly bicallous in *M. Xligiae*, a presumed natural hybrid, suggesting a species of subgenus *Polyanthae* as one of the parents. It is included here because of the ventricose and constricted sepaline tube.

In this subsection 26 related species, albeit some less closely related, are distributed in the Andes from Venezuela into Peru.

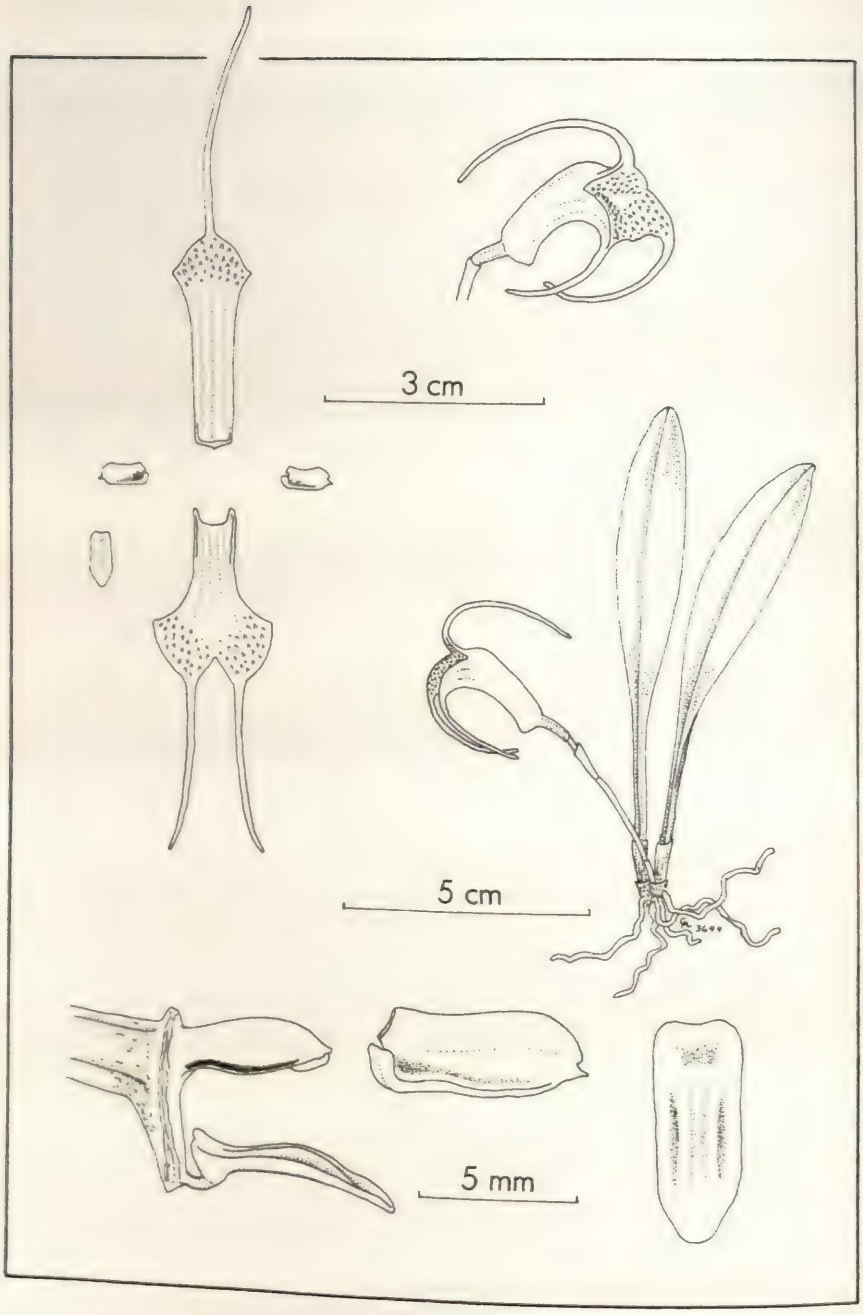


Plate 500. Masdevallia agaster

KEY TO THE SPECIES

1 Sepals white, or variously suffused with yellow or orange....11
1' Sepals variously suffused or striped with red, brown or purple....18

2 Sepals with tails much shorter than the tube....3
2' Sepals with tails about as long as or longer than the tube....6

3 Lateral sepals with the free portions expanded....*M. morochoi*
3' Sepals with the free portions equal to that of the dorsal sepal....4

4 Sepaline tube cylindrical, arcuate, not ventricose....*M. mendozae*
4' Sepaline tube ventricose....5

5 Sepaline tube inflated, less than 20 mm long....*M. limax*
5' Sepaline tube slender, cylindrical, slightly ventricose in lower third, more than 25 mm long....*M. maxilimax*

6 Sepaline tube cylindrical, arcuate, not ventricose....7
6' Sepaline tube ventricose....9

7 Sepals with prominent, thick hairs, or trichomes, within....*M. agaster*
7' Sepals not with thick trichomes within....8

8 Sepals totally orange, glabrous....*M. hirtzii*
8' Sepals yellowish white, suffused with orange below the middle; finely pubescent within....*M. ricii*

9 Sepals glabrous within....*M. aurea*
9' Sepals variously pubescent within....10

10 Sepals with prominent, capitate hairs within....11
10' Sepals variously pubescent without capitate hairs....12

11 Sepaline tails much longer than the tube....*M. strobelii*
11' Sepaline tails shorter than the tube....*M. anemone*

12 Sepals orange to apricot....13
12' Sepals white, suffused with orange toward the base....14

13 Sepals apricot, more than 3 cm long....*M. rex*
13' Sepals light orange with darker veins, ca. 2 cm long....*M. calosiphon*

14 Sepals with tails slightly shorter than the tube....*M. fuchsii*
14' Sepals with tails longer than the tube....15

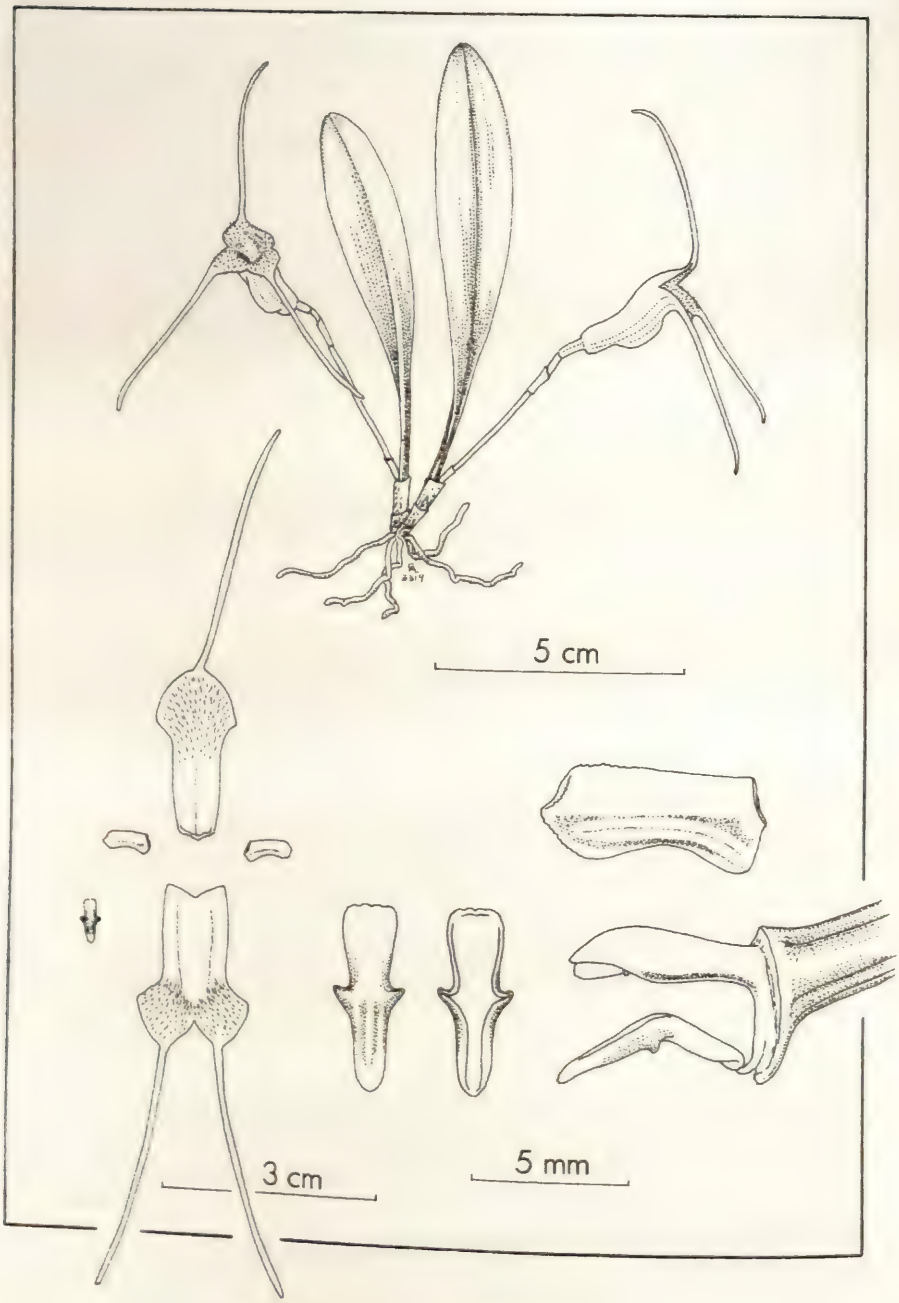


Plate 501. Masdevallia ampullacea

Masdevallia agaster Luer, Phytologia 42: 455, 1979.

Ety.: From the Greek *a-*, "without," and *gaster*, "a belly," referring to the sepaline tube free of any ventricose swelling.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-9 cm long including the petiole 1-2.5 cm long, the blade narrowly elliptical, acute, 1.3-1.6 cm wide, gradually narrowed below into the petiolate base. **Inflorescence** a solitary flower borne by a suberect to ascending, slender peduncle 1.5-2.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-9 mm long; pedicel 9-10 mm long; ovary green, pitted, 6 mm long; **sepals** yellow-orange, becoming whitish toward the apices, glabrous externally, white and glandular-papillose within on the free portions, the dorsal sepal oblong, 25 mm long, 11 mm wide at the ostium, connate to the lateral sepals for 21 mm to form a horizontal, arcuate, cylindrical tube, the free portion broadly ovate, the obtuse apex contracted into a slender, recurved, orange tail 26 mm long, the lateral sepals obliquely obovate, 23 mm long, connate 18 mm, the tubular portion 6 mm wide, the free portions ovate, 18 mm wide together, the subacute apices contracted into slender, orange tails 24 mm long; **petals** white, oblong, 7 mm long, 2.75 mm wide, the obtuse apex bilobed-apiculate, the lower margin with a longitudinal callus ending in a thick, truncate, incurved appendage at the base; **lip** white, suffused with purple along the margins, oblong, 7 mm long, 2.75 mm wide, the apex rounded, the disc with a pair of low, longitudinal calli near the middle, the base truncate, hinged beneath; **column** white with purple margins, semiterete, 5 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. ca. 1500 m, collected by W. Teague, cultivated in San Francisco, CA, 12 Dec. 1978, *C. Luer 3644* (SEL); epiphytic in cloud forest south of Yangana, north of Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9591* (MO).

This species is local but relatively frequent in some wet forests of southern Ecuador where it was first found by Walter Teague. It is vegetatively similar to most other small species of the section. The solitary, yellow-orange sepaline tube is arcuate, and neither ventricose nor constricted. The sepals are studded within by capitate hairs, similar to those of *M. strobelii*, but the tube of the latter is ventricose. At the base of the tube, a thick, incurved, basal tooth is found on the petals of both species. The lip is oblong and obtuse.

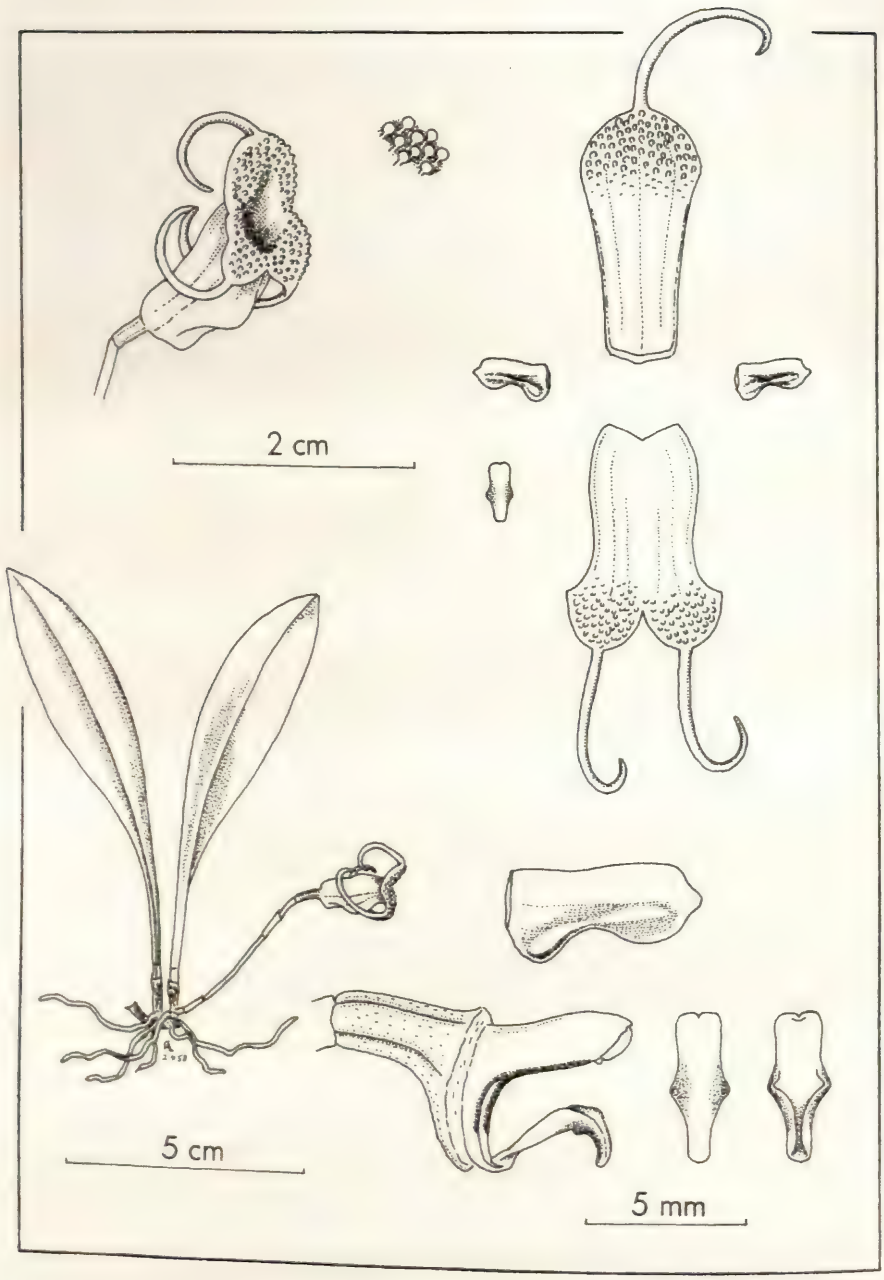


Plate 502. Masdevallia anemone

Masdevallia ampullacea Luer & Andreetta, Phytologia 42: 456, 1979.

Ety.: From the Latin *ampulla,* "a flask or bottle," referring to the shape of the sepaline tube.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, obscurely petiolate, 4-10 cm long including the petiole 1-3 cm long, the blade narrowly elliptical, subacute, 1.5-2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary, horizontal flower borne by a slender, suberect peduncle 3-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 5-9 mm long; pedicel 8-13 mm long; ovary 4-6 mm long; **sepals** white to light yellow, suffused and veined in yellow to orange, glabrous externally, variously pubescent within above the middle, the dorsal sepal obovate, 20-23 mm long, 10-11 mm wide, connate to the lateral sepals for 15-18 mm into a cylindrical, ventricose tube, the free portion broadly ovate, the rounded apex contracted into a slender, orange, erect tail 20-35 mm long, the lateral sepals 18-21 mm long, connate 17-18 mm into an oblong, broadly ventricose lamina 10 mm wide, 15 mm wide at the ostium, the free portions ovate, oblique, the obtuse apices produced into tails similar to that of the dorsal sepal; **petals** yellow-orange, oblong, 7 mm long, 3 mm wide, the obtuse apex more or less twisted with cellular-erose margins, the labellar half with a longitudinal callus ending in an obtuse angle at the base; **lip** oblong, 5-6 mm long, 2 mm wide, with acute, lateral angles near the middle formed by revolute margins, suffused with purple, the apex narrowly rounded, orange, the base white, truncate, hinged beneath; **column** white with purple margins, semiterete, 6 mm long, the foot 3 mm long with a short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest near Bomboiza, alt. 1500 m, collected by A. Andreetta, cultivated in Cuenca, 18 Aug. 1978, *C. Luer 3319* (Holotype: SEL; clonotype: K); Los Tayos, Río Cosangos, alt. 700 m, *G.C.C. Argent 393* (NY, SEL); Cordillera del Cutucú, alt. 800 m, Aug. 1989, *A. Hirtz & X. Hirtz 4348* (MO). **Pastaza**: north-northeast of Puyo, alt. 740 m, 22 Apr. 1972, *B. MacBryde 1506* (AMES). **Zamora-Chinchipe**: Valle de Zamora, alt. 900 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13659* (MO); Cordillera del Condor, Patchicutza, alt. 1200-1500 m, June 1991, *A. Hirtz 5524* (MO).

This species occurs rather frequently in the wet forests of southern Ecuador where it was first discovered by Padre Andreetta. The narrowly elliptical, obscurely petiolate leaves are similar to those of many other species of the subsection. *Masdevallia ampullacea* is characterized by the solitary, light yellow, tubular, ventricose flower suffused and veined in orange. Held more or less horizontally, the tube is constricted below the orifice and pubescent within. The tails are slender and about as long as the tube. The free portions of the lateral sepals protrude farther than the short, free portion of the dorsal sepal. The petals, lip and column are located deep within the tube. The petals with an obtuse callus at the base, and the lip with protruding marginal angles at the middle are similar to those of *M. aurea*. The only feature separating the two taxa is the conspicuous, internal pubescence of the sepals of *M. ampullacea*.

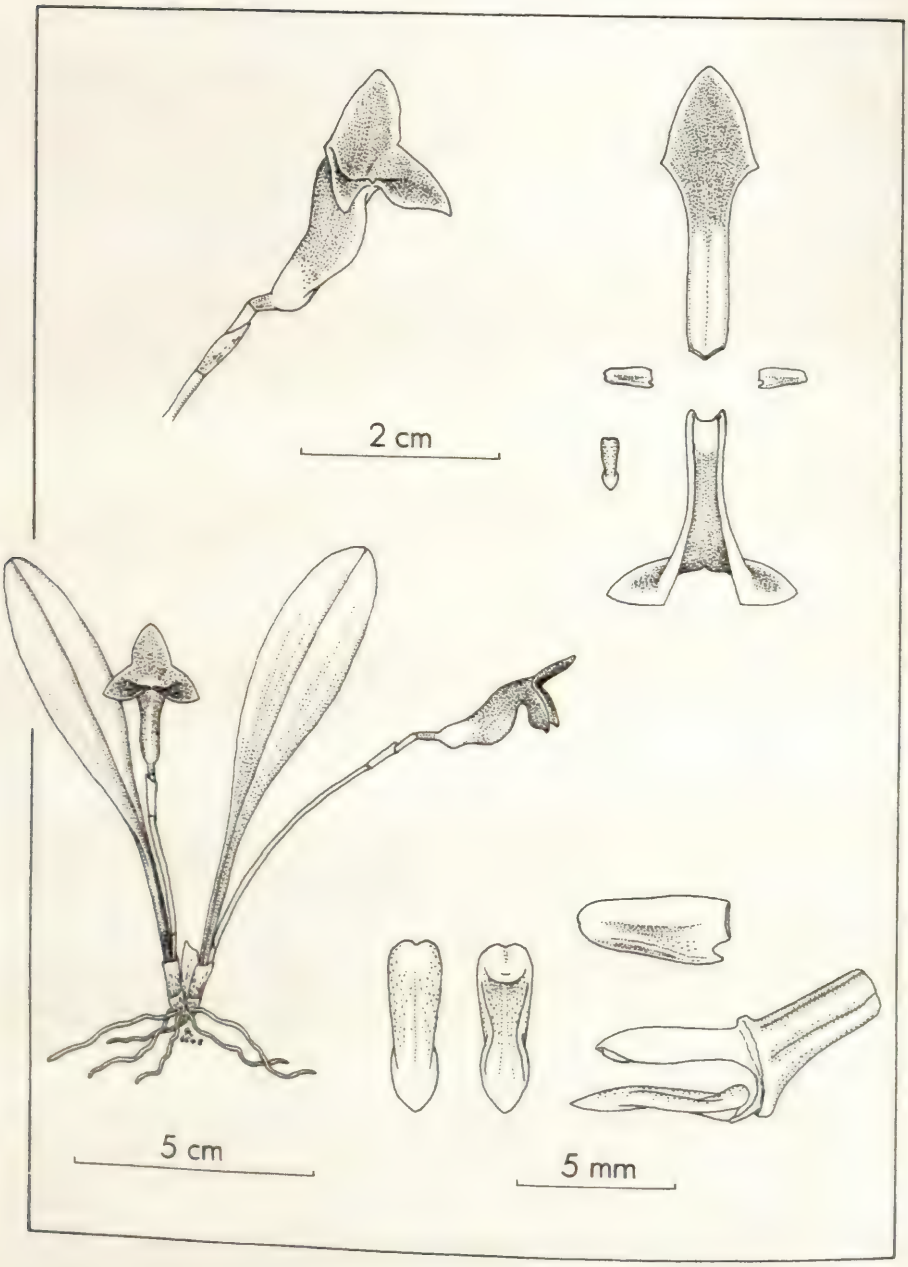


Plate 504. Masdevallia angulifera

Masdevallia anemone Luer, Phytologia 39: 187, 1978.

Ety.: Named for the resemblance of the flower to a sea anemone, which in turn is named for its resemblance to "windflowers" of the genus *Anemone*. From the mythological Greek *Anemone*, "daughter of the wind."

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-1.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, 7-9.5 cm long including an indistinct petiole 1.5-3 cm long, the blade elliptical, subacute, 1.7-2.1 cm wide, the base gradually narrowed into the petiole. **Inflorescence** a solitary, more or less horizontal, orange, tubular flower borne by a suberect, slender peduncle ca. 2.5 cm long, with a bract near the base, from low in the ramicaul; floral bract tubular, 6 mm long; pedicel 10 mm long; ovary 4 mm long; **sepals** glabrous externally, yellow-orange above the middle, orange below the middle with bright orange veins, the free portions beset with short, capitate hairs within, the dorsal sepal obovate-oblong, 20 mm long, 9 mm wide, connate to the lateral sepals for 15 mm into a cylindrical, slightly ventricose tube, the free portion rounded, 5 mm long, abruptly contracted into a slender, acutely recurved, orange tail 15 mm long, the lateral sepals 18 mm long, connate 13 mm, the free portions 6 mm wide, similarly rounded with tails similar to that of the dorsal sepal; **petals** orange, oblong-panduriform, 6 mm long, 2-3 mm wide, the obtuse apex obscurely lobed, the lower margin with a thick lamella ending on a dilatation at the base; **lip** oblong, 4.5 mm long, 1.75 mm wide, obtusely angled and suffused with purple at the middle, the apical third orange, narrowly obtuse with recurved margins, the truncate base white, hinged beneath; **column** greenish white, edged in purple, semiterete, 4.5 mm long, the foot 3 mm long with a short incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest near Bomboiza, alt. ca. 1000 m, ca. 1968, collected by A. Andreetta, cultivated by B. Malo at Tarqui, 5 Feb. 1978, *C. Luer 2458* (Holotype: SEL).

This species is rare in southeastern Ecuador. In cultivation it grows slowly and flowers seldomly. Unfortunately, the single plant in cultivation was lost in a frost in Malo's collection at Tarqui in 1986. So far, this species has not been rediscovered.

Although vegetatively similar to other members of the subsection, *M. anemone* is easily recognized by the orange, suberect, ventricose, sepaline tube that is slightly constricted below the orifice, and short, reflexed tails. The free portions of the three sepals are rounded and similar and studded within with conspicuous, short, capitate hairs.

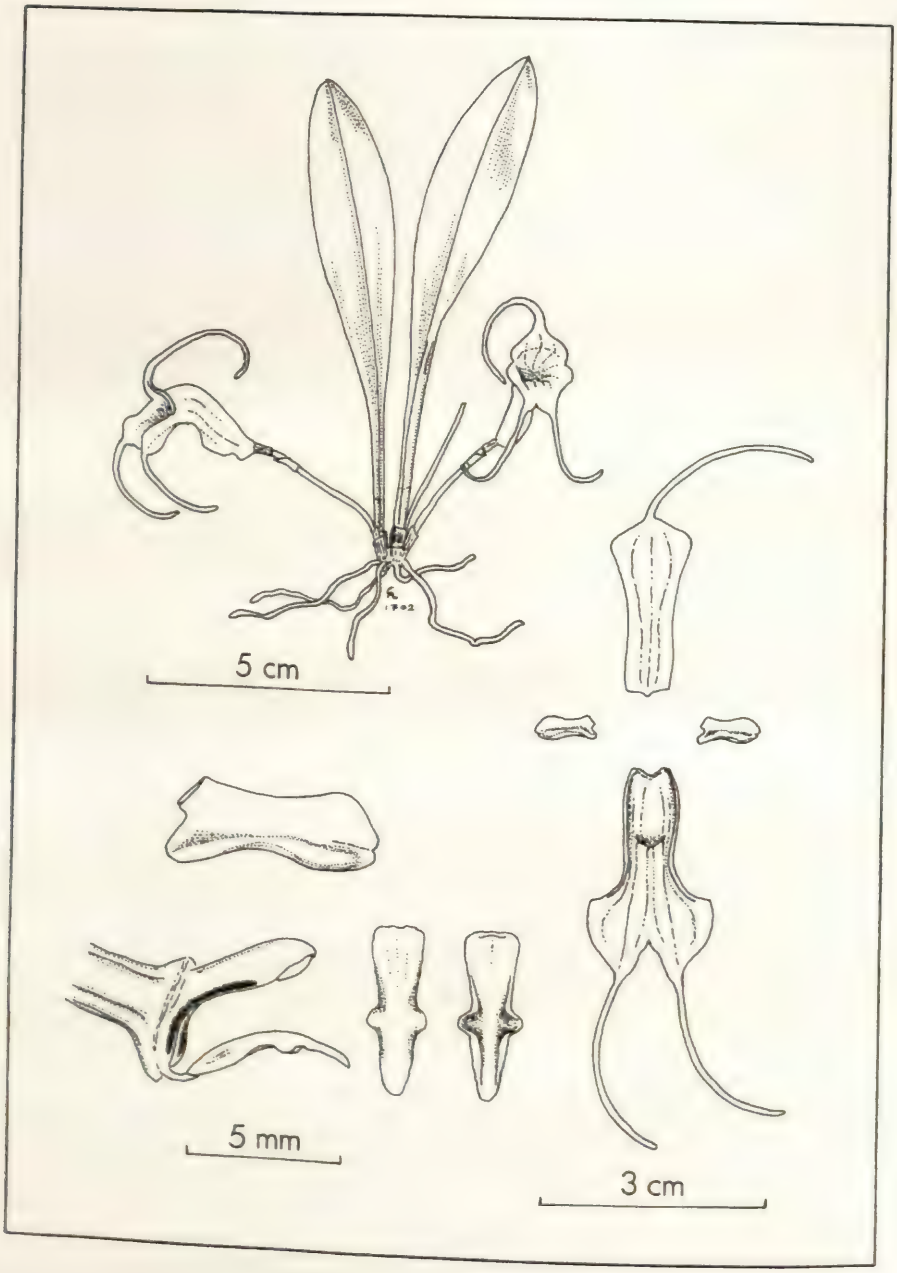


Plate 505. Masdevallia aurea

Masdevallia angulifera Rchb.f. ex Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 19, 1925.

Ety.: From the Latin *angulifer*, "angle bearing," referring to the broadly angled apices of the sepals.

Syn.: *Masdevallia olivacea* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34:20, 1925.
Ety.: From the Latin *olivaceus*, in reference to the color-form of the flower.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-14 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, subacute to obtuse, 1.8-2.6 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a solitary, suberect, tubular, ventricose flower borne by an erect to suberect, slender peduncle 5-8 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 7-10 mm long; pedicel 10-12 mm long; ovary 4-5 mm long; **sepals** yellow-green, usually diffusely suffused with purple except near the base, both surfaces microscopically short-pubescent, the dorsal sepal obovate-spathulate, 25-33 mm long, 9-10 mm wide expanded, connate to the lateral sepals for 20-22 mm to form a slightly sigmoid, sepaline tube, constricted above the middle, the free portion ovate, subacute, the lateral sepals 25-30 mm long, connate 16-18 into a longitudinally concave synsepal, 9-16 mm wide expanded, the apices reflexed, triangular, subacute; **petals** light yellow-green, suffused and sparsely dotted with purple, oblong, 5 mm long, 2 mm wide, the obtuse apex obscurely bilobed, the labellar margin with a longitudinal callus ending in a short, acute tooth above the base; **lip** yellow, dotted with red, oblong-ligulate, 5.5 mm long, 1.75 mm wide, the lateral margins slightly revolute, the apex subacute, the base subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 1.5 mm long, with an incurved extension.

COLOMBIA: Without locality, *G. Wallis s.n.* (Holotype: W). **Cauca**: epiphytic in humid forest, Alto de Tuiza above Marmato, alt. 1800 m, 7 Oct. 1883, *F.C. Lehmann 3207* (holotype of *M. olivacea*: G; isotypes: BM, BR). **Antioquia**: Cocorná, Quebrada La Hundida, alt. 2000 m, 12 July 1975, collected by G. Misas & L.C. Vieira, cultivated at La Estrella by O. Arango, 9 Oct. 1977, *C. Luer 1967* (SEL); Urrao, alt. 1800-2000 m, collected by E. Segura, cultivated at La Ceja by M. & O. Robledo 21, Jan. 1978, *C. Luer 2307* (SEL); same collection, cultivated at Colombórquideas, 18 Mar. 1989, *C. Luer 14218* (MO); Ituango, Sta. Rita, collected by Pacho, cultivated at Orquifollajes, 9 July 1996, *C. Luer 17986* (MO).

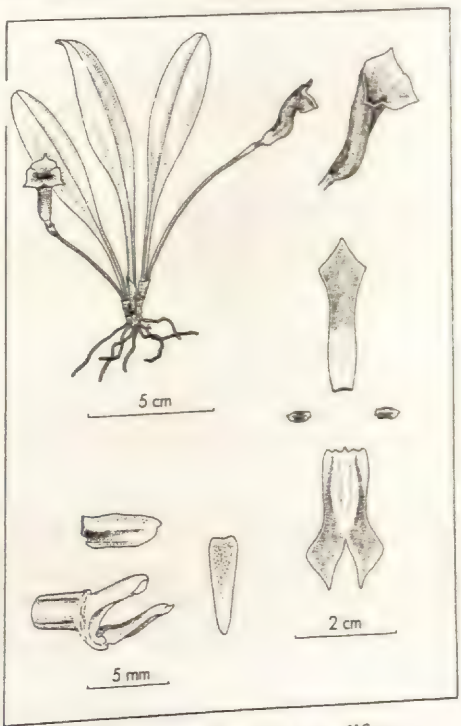


Plate 503. Masdevallia angulifera

This species was published posthumously by Kränzlin thirty-six years after Reichenbach's death in 1889. An olive green color variation, collected much later by Lehmann, was published simultaneously as *M. olivacea*.

The species is characterized by a tubular, ventricose, sepaline tube, constricted above the middle, with the ostium surrounded by three, similar, ovate, lobelike apices of the sepals. The color varies from yellow-green to rose or deep purple. Some flowers emit a fragrance reminiscent of banana oil or acetone.

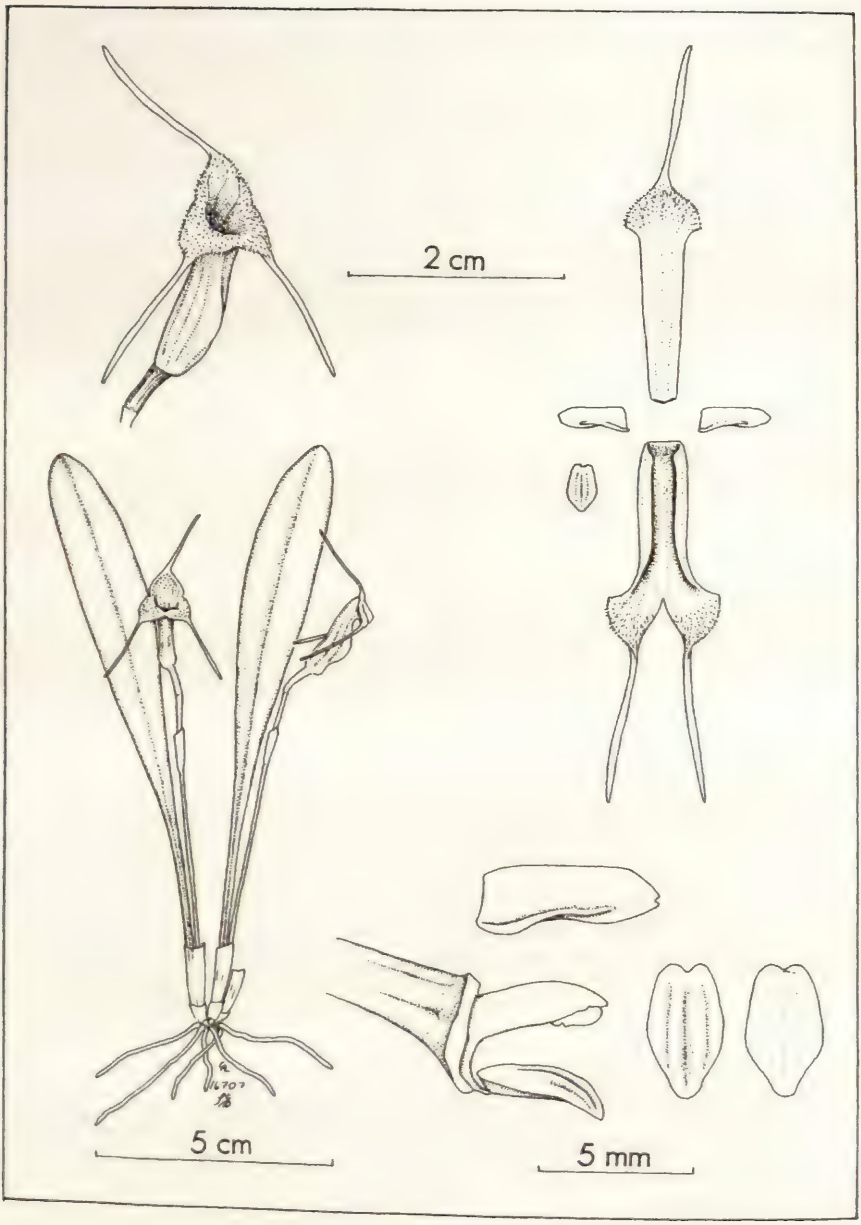


Plate 506. Masdevallia calosiphon

Masdevallia aurea Luer, Phytologia 39: 188, 1978.

Ety.: From the Latin *aureus*, "golden, orange," referring to the color of the flowers.

Syn.: *Masdevallia santiagoörum* Königer, Arcula 7: 196, 1997.

Ety.: Named for Santiago Marin and Santiago Arevalo who collected the species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-11.5 cm long including the petiole 1.5-3.5 cm long, the blade narrowly elliptical, subacute, the base cuneate into the channeled petiole. **Inflorescence** a solitary flower borne by a slender, suberect peduncle 2.5-3 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 7 mm long; ovary 4-5 mm long; **sepals** glabrous, white, heavily suffused with orange, the dorsal sepal oblong, 24 mm long, 10 mm wide, connate to the lateral sepals for 18 mm to form a cylindrical, lightly arcuate, lightly compressed, tube, ventricose below a constriction near the middle, the free portion transversely ovate, 3 mm long, the obtuse apex contracted into a bright orange, slender, recurved tail, the lateral sepals obliquely obovate, 28 mm long, 15 mm wide expanded at the junction with the dorsal sepal, connate 25 mm to form the secondary mentum below the middle, the free portions ovate, obtuse, 10 mm long, contracted into recurved tails similar to that of the dorsal sepal; **petals** yellow, oblong, 7 mm long, 2.5 mm wide, lightly dilated at the rounded, bilobed apex, the lower margin with a longitudinal callus ending in a thick, obtuse, retrorse tooth at the base; **lip** pale yellow, oblong-subpandurate, 5.5 mm long, 2 mm wide, the margins dilated and revolute above the middle, the apex narrowly rounded, the base truncate, hinged below; **column** pale yellow, edged in purple, semiterete, 4 mm long, the foot 2 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: "eastern slopes of the Andes," alt. 1700 m, collected Dec. 1974 by B. Malo, cultivated at Tarqui near Cuenca, 15 July 1977, *C. Luer 1702* (Holotype: SEL); "Zamora," alt. 1100 m, collected by Santiago Marin and Santiago Arévalo, cultivated in Munich, Germany, without date, by *W. Königer WK-75* (holotype of *M. santiagoörum*: M; isotype: Herb. Helga Königer); same collection, cultivated in Macas by Santiago Arévalo, 2 Mar. 2001, *C. Luer 19626* (MO, clonotype of *M.* santiagoörum).

Masdevallia aurea is closely allied to subsequently described *M. ampullacea*, differing from the latter mainly in the lack of pubescence. Whereas *M. ampullacea* is encountered frequently, the sympatric and glabrous *M. aurea* is uncommon, known from only two collections. *Masdevallia ampullacea* may be merely a pubescent variation of *M. aurea*.

One of the discoveries of Benigno Malo, this bright orange, hairless species was lost from his collection in a frost in 1986, and another collection had been eagerly sought by collectors. Recently, however, another collection has been made near Limón in the province of Morona-Santiago in southeastern Ecuador.

Vegetatively similar to many other species of the subsection, *M. aurea* is distinguished by the bright orange, ventricose, more or less horizontal, sepaline tube, constricted below the orifice, glabrous within, and with slender, orange tails about as long as the tube. The free portions of the lateral sepals protrude farther than the short, free portion of the dorsal sepal. The petals, lip and column, located deep within the tube, are similar to those of *M. ampullacea*.

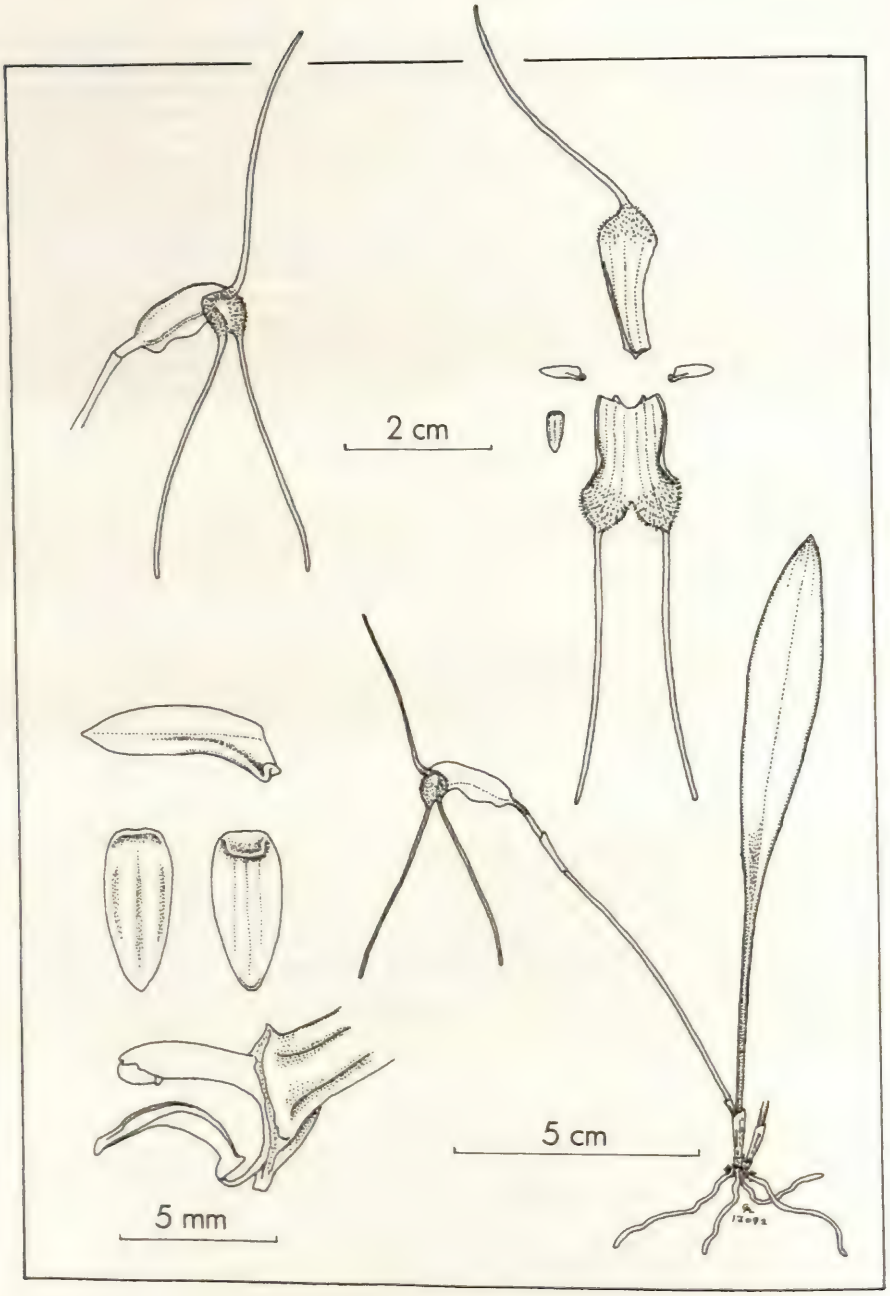


Plate 507. Masdevallia chuspipatae

Masdevallia calosiphon Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 120, 2000.

Ety: From the Greek *calosiphon*, "a beautiful tube," referring to the sepaline tube.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-11 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, acute to subacute, 1-1.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 4-6 cm long, with a bract above the base, from low on the ramicaul; floral bract 9-10 mm long; pedicel 15-20 mm long; ovary 6 mm long; **sepals** light orange, striped along the veins in darker orange and lightly veined red, pubescent within near the apex, glabrous externally, the dorsal sepal narrowly linear-obovate, concave, 21 mm long, 7 mm wide expanded at the orifice of the tube, connate to the lateral sepals for 16 mm to form a suberect, sepaline tube, constricted in the distal quarter, the apex broadly obtuse, contracted into an erect, orange tail 14 mm long, slightly swollen in the middle third, the lateral sepals 20 mm long, connate 15 mm, 5 mm wide beyond the tube, the obtuse apices contracted into tails similar to that of the dorsal sepal; **petals** yellowish white, oblong, 6.5 mm long, 2 mm wide, the apex obtuse, obscurely lobed, with a longitudinal carina along the labellar margin terminating at the base; **lip** white, elliptical-obovate, 4.5 mm long, 2.3 mm wide, the sides slightly dilated above the middle, the apex narrowly obtuse, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** semiterete, white with thin, purple margins, 4 mm long, the foot 1 mm long, with a slender, incurved extension.

PERU: **Huánuco**: cloud forest between Tingo Maria and Pucallpa, by an unknown collector, cultivated at Colomborquídeas near Medellín, Colombia, 20 Apr. 1988, *C. Luer 16707* (Holotype: MO); between Tingo Maria and Pucallpa, alt. 2700 m, July 2000, *P. Cloes s.n.* (MO).

This species is apparently endemic in one area of central Peru where it is sympatric with both *M. constricta* and *M. fuchsii*. The watercolor painting of *M. calosiphon* by Frl. Trechslin was misidentified in *Thesaurus Masdevalliarum* 7: 2, 1986, as *M. fuchsii*. Being unfamiliar with the true *M. fuchsii*, Königer redescribed another collection of *M. fuchsii* as *M. saulii*.

The two species are closely related, but readily separated by the smaller, more slender, proportionately longer, orange-striped, sepaline tube of *M. calosiphon*. The terminal expanse of the ostium of the tube of the latter is about one-third the length of the tube, while the broadly expanded ostium of *M. fuchsii* is about half the length of the tube that is white and only lightly suffused with orange at the base.

The callus of the petal of *M. calosiphon* is thin and ends obtusely at the base, while the callus of *M. fuchsii* is thick and ends in a prominent, incurved process. The lips are simple. The distorted apex in the illustration published for *M. saulii* is probably an artifact.

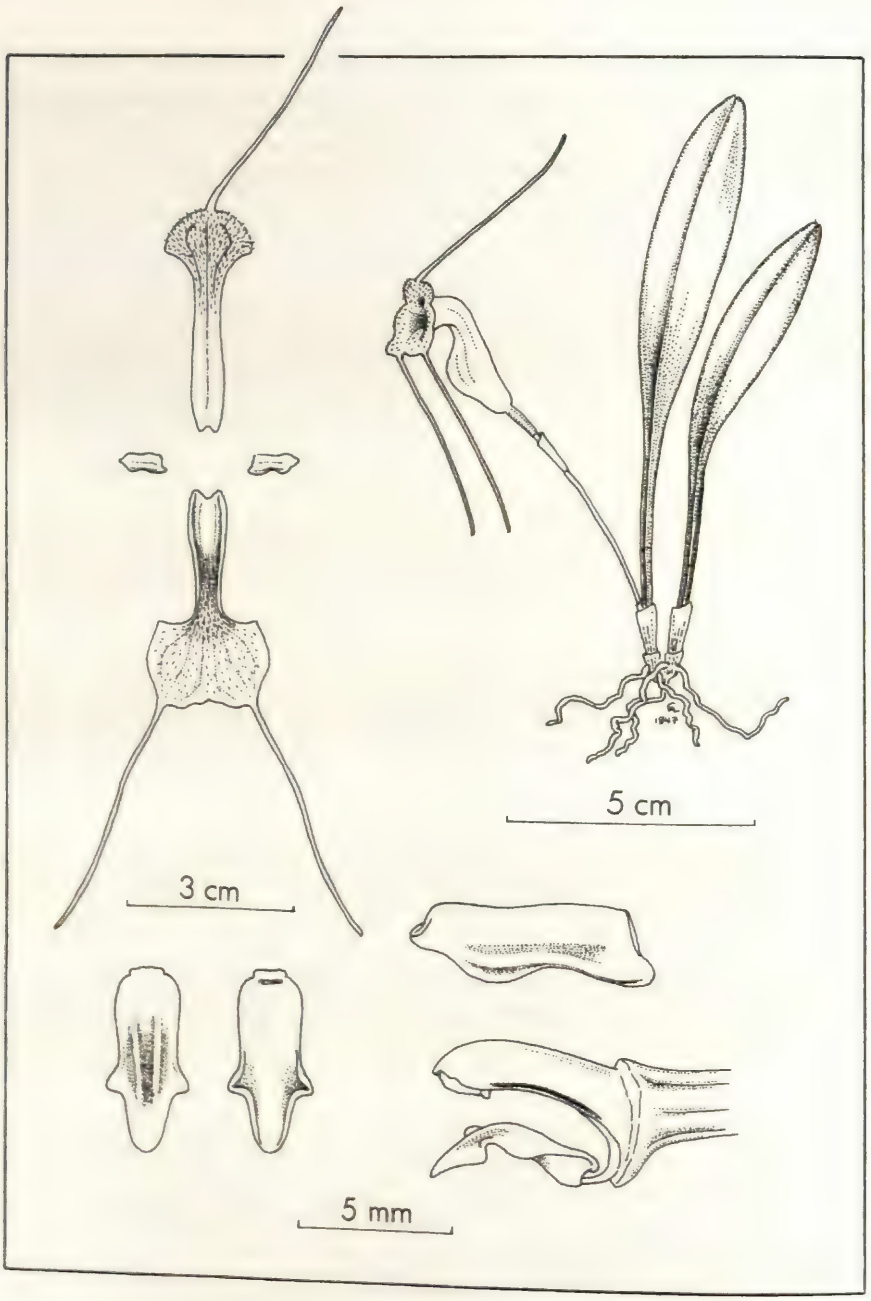


Plate 508. Masdevallia constricta

Masdevallia chuspipatae Luer & Teague, Lindleyana 9: 103, 1994.

Ety: Named for the tiny locality of Chuspipata, near where this species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-2.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, long-petiolate, 10-13 cm long including the petiole 3-4 cm long, the blade narrowly elliptical, acute, 1.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle 6.5-7 cm long, with a bract above the base, from low on the ramicaul; floral bract 9 mm long; pedicel 16 mm long; ovary 6-7 mm long; **sepals** white, suffused with orange toward the base, pubescent within above the middle, glabrous externally, sharply but low-carinate along the midveins, the dorsal sepal narrowly obovate, concave, 18 mm long, 8 mm wide expanded at the orifice of the sepaline tube, connate to the lateral sepals for 15 mm to form an arcuate, sepaline tube, the apex broadly obtuse, contracted into a slender, yellow tail 38 mm long, the lateral sepals 18 mm long, connate 12 mm into a bifid, more or less obovate lamina, the free portions ovate, 6 mm wide, obtuse, contracted into tails similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 1.5 mm wide, the apex entire, acute, with a longitudinal carina along the labellar margin terminating at the base in a thick, acutely incurved process; **lip** yellow, ovate, arcuate, narrowly subacute, 5 mm long, 2 mm wide, the disc shallowly channeled between a pair of low, longitudinal calli, the base with a thin margin above a thick, flat, subquadrate surface on the end, hinged beneath; **column** semiterete, 4.5 mm long, with a foot 3.5 mm long including a slender extension 1.5 mm long.

BOLIVIA: **La Paz**: Nor Yungas, epiphytic in forest between Chispipata and Yolasa, alt. ca. 2000 m, collected Nov. 1992, cultivated in San Francisco, CA, by *W. Teague 186* (Holotype: MO).

This species was collected out of flower in the Yungas of Bolivia by Walter Teague, and cultivated in San Francisco, California. It is most similar to the Ecuadorian *M. ampullacea*, although the peduncles are considerably longer and the leaves are narrow and acute. The flowers are superficially similar, with the cylindrical tube only slightly ventricose, white and suffused with orange toward the base, and pubescent within the short, obtuse, free portions. The tails are long and slender. The petals are acute with an acutely incurved process at the base, similar to that of *M. ricii*. The flat end of the base of the lip is also similar to that of *M. ricii*, but much smaller.

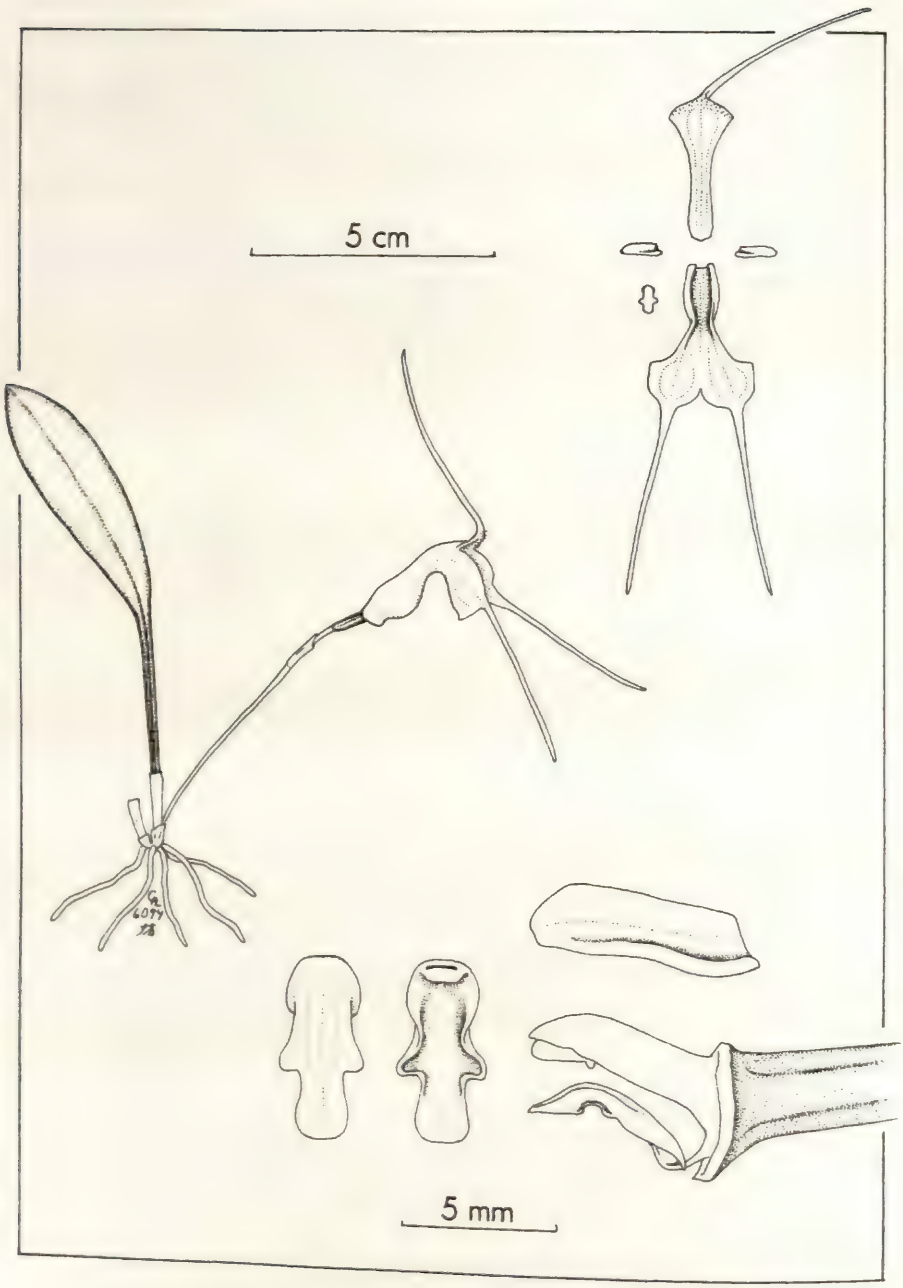


Plate 509. Masdevallia constricta

Masdevallia constricta Poepp. & Endl., Nov. Gen. Sp. 2: 6, 1838.

Ety: From the Latin *constrictus*, "constricted," referring to the sepaline tube.

Syn.: *Masdevallia urosalpinx* Luer, Phytologia 42: 468, 1979.

Ety.: From the Greek *urosalpinx*, "a tailed trumpet," referring to the sepaline tube.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-3 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-11 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, acute to subacute, 1-1.8 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect to suberect peduncle 4-6 cm long, with a bract above the base, from low on the ramicaul; floral bract 8-10 mm long; pedicel 10-15 mm long; ovary green, 7-8 mm long; **sepals** white, variously suffused or veined with orange or yellow, especially on the middle third of the tube, pubescent within above the middle, glabrous externally, the dorsal sepal narrowly obovate, concave, 30-37 mm long, 12-14 mm wide expanded at the orifice of the tube, connate to the lateral sepals for 25-30 mm to form a more or less arcuate, sepaline tube, constricted in the distal quarter, the apex broadly rounded, abruptly contracted into an erect, slender, yellow tail 4-4.5 cm long, the lateral sepals 28-35 mm long, connate 27-33 mm into an expanded, subquadrate lamina beyond the tube, 20-23 mm wide, the rounded apices contracted into descending tails similar to that of the dorsal sepal; **petals** yellowish white, oblong, 7-8 mm long, 2 mm wide, 3 mm wide above the base, the apex obtuse, with the upper margin slightly inflexed, with a longitudinal carina along the labellar margin terminating at the base in a thick, broadly obtuse process; **lip** white, obovate, 6 mm long, 2-2.4 mm wide, the sides slightly dilated above the middle and slightly reflexed in the distal third to the narrowly obtuse apex, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subtruncate, hinged beneath; **column** semiterete, white with thin, purple margins, 6 mm long, the foot 1 mm long, with a slender, incurved extension.

PERU: **Huánuco**: epiphytic in mountains around Cuchero, ca. 1830, *E. Poeppig s.n.* (Holotype: W); epiphytic in cloud forest between Tingo Maria and Pucallpa, alt. 1700 m, Mar. 1975, collected by Janet Kuhn, Fred Fuchs et al., cultivated at J & L Orchids, Easton, CT, 7 Nov. 1977, *C. Luer 1847* (holotype of *M. urosalpinx*: SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13291* (MO). **San Martín**: collected 12 July 1965, and cultivated, by *D. Bennett 1664-3* (AMES); Moyobamba, along Río Mayo, 5 July 1986, *L. Moore & R. Villena 3522* (MO).

ECUADOR: **Zamora-Chinchipe**: near Zamora, collected by A. Andreetta, cultivated at Paute, Aug. 1990, *A. Hirtz 5023* (MO); near Zamora, alt. 1500 m, collected and cultivated in Zamora by A. Montaño, 5 Mar. 1990, *S. Dalström & L. Årnby 1473* (MO).

This species is relatively frequent in the Andes from southern Ecuador into central Peru. Along with many other discoveries, it was first collected by Poeppig during his stay at Cuchero in central Peru between 1829 and 1831. With Endlicher it was described and illustrated in 1838. Although details are not clear, the drawing is recognizable. In the description, the sepaline tube is said to be striped in purple. For this reason, the species was described as new with another epithet (*urosalpinx*) in 1979. In the meantime, however, numerous collections of

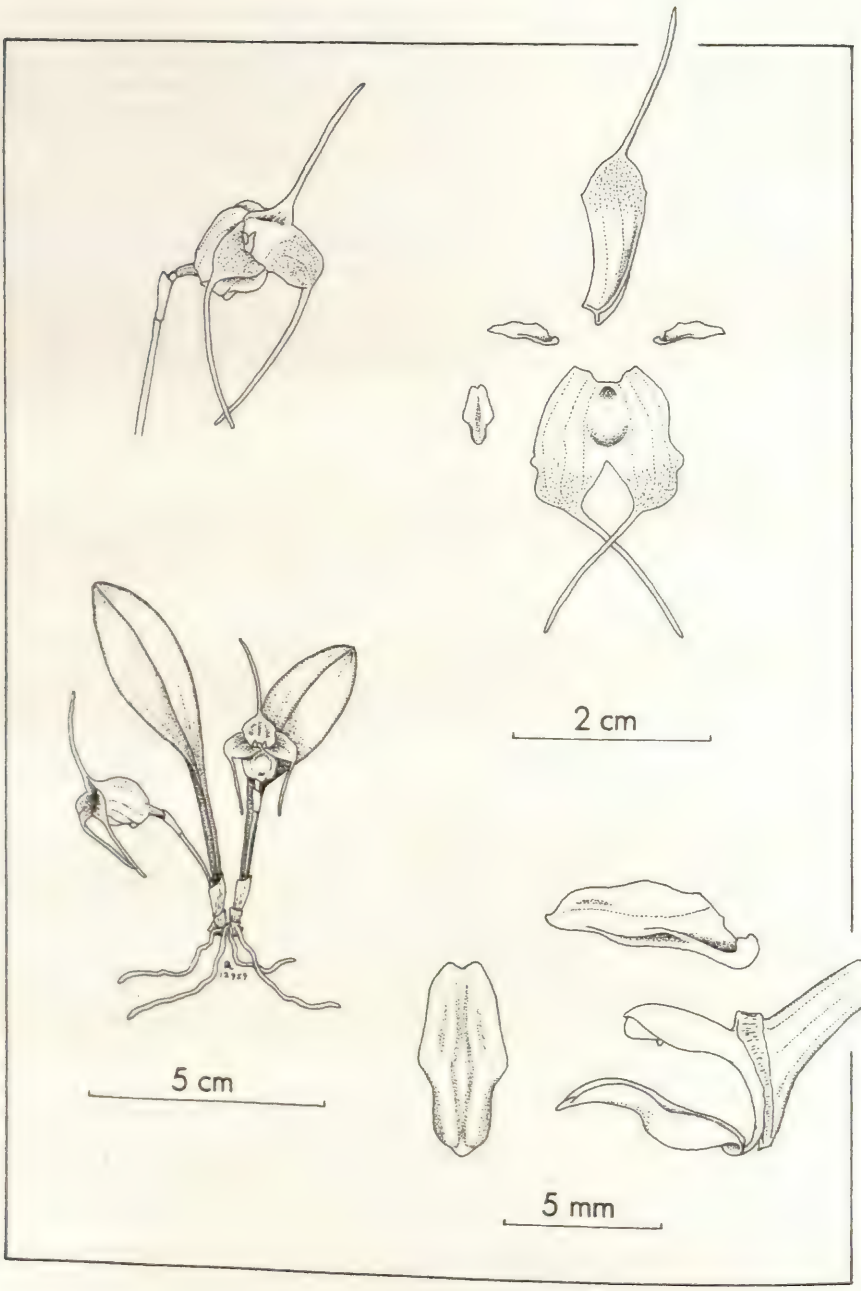


Plate 510. Masdevallia eurynogaster

plants with yellow or orange sepaline tubes have been seen over a wide distribution. Never has one with purple stripes been seen. Considering the fact that several obvious misstatements have been made in some of Poeppig and Endlicher's descriptions of other species, the "purple stripes" probably is another misstatement.

Masdevallia constricta is variable in the size, and in the yellow or orange suffusion or veining of the sepaline tube. The tube is ventricose below the middle, and constricted above, behind the abrupt expansion of the free portions of the sepals. The size and shape of the petals, lip and column are nearly constant throughout the entire range.

Masdevallia tubata, described from central Bolivia, varies from *M. constricta* from Peru and Ecuador in the narrower leaves and narrower sepaline tube that is more bent forward below the expanded free portions of the sepals.

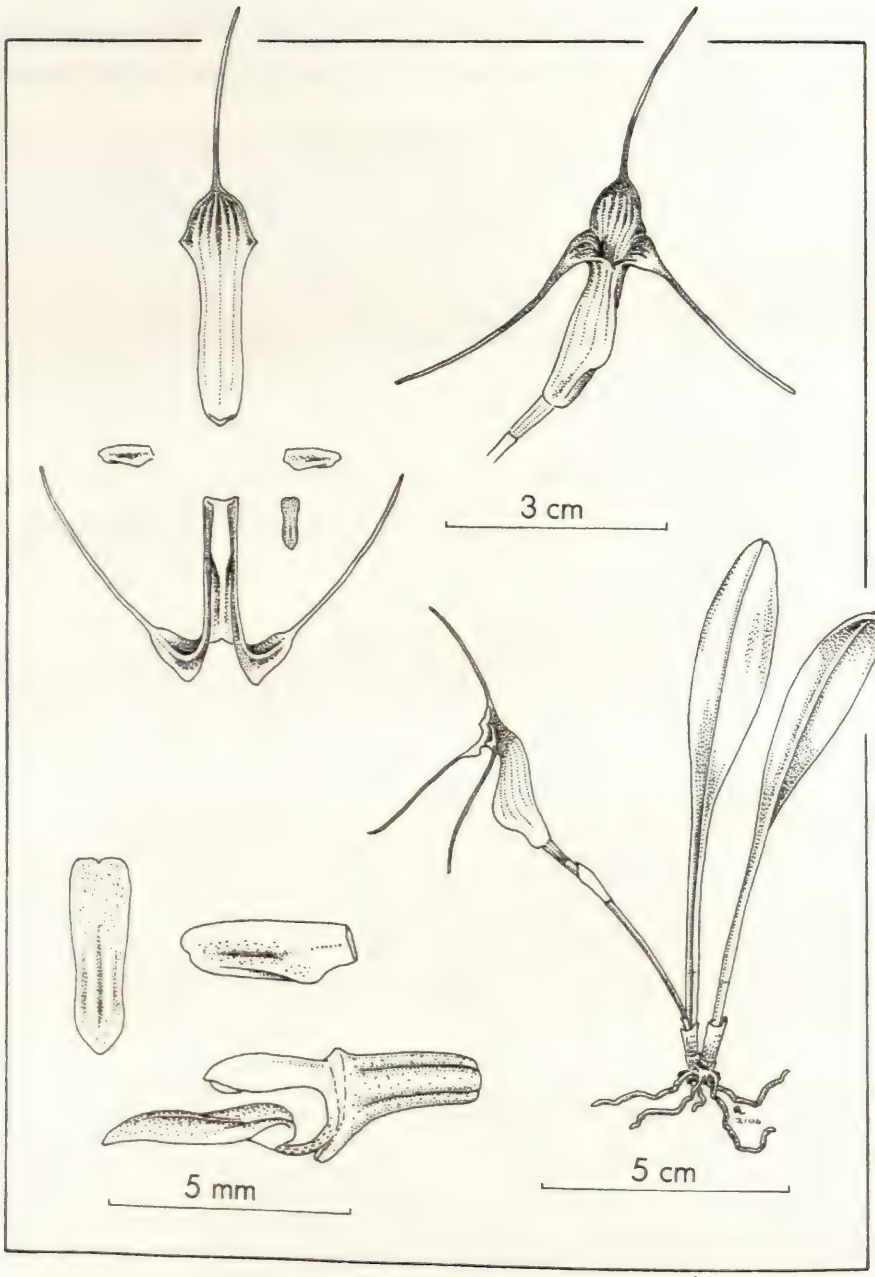


Plate 511. Masdevallia filaria

Masdevallia eurynogaster Luer & Andreetta, Lindleyana 3: 29, 1988.

Ety.: From the Greek *eurynogaster,* "a broad belly," referring to the sepaline tube.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1.5-1 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-7 cm long including the petiole 1.5-3 cm long, the blade elliptical, subacute, 1.4-1.7 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect to suberect peduncle 1-1.8 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 5 mm long; pedicel 5 mm long; ovary dark purple, 3-4 mm long; **sepals** pale yellow-green externally, suffused with purple within, glabrous below the middle, minutely short-pubescent above the middle, the dorsal sepal oblong, curved, concave, carinate, 16 mm long, 7 mm wide, connate to the lateral sepals for 11 mm to form a broadly cylindrical, sepaline tube dilated near the middle, the obtuse apex contracted into an erect, slender, green tail 15-20 mm long, the lateral sepals oblong, 15 mm long, 7 mm wide, connate 8 mm, forming a small mentum below the column-foot and a broad, shallow, secondary mentum above, the free portions oblique, obtuse, contracted into slender, yellow tails 12-15 mm long; **petals** light green, cartilaginous, more or less oblong, 7 mm long, 2 mm wide, the apex oblique, acute, the lower margin with a longitudinal winglike carina, produced into a thick, incurved process above the base; **lip** red-brown, elliptical-ligulate, 6 mm long, 2.75 mm wide, the apex obtuse, the disc longitudinally sulcate, the base subcordate, hinged beneath; **column** greenish white, semiterete, 3.5 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera del Condor, east of Chuchumbletza, alt. 1500 m, collected and cultivated by Padre Angel Andreetta at Paute, cultivated by P. and A. Jesup, Bristol, CT, June 1987, *C. Luer 12929* (Holotype: MO); Cordillera del Condor, east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, P. & A. Jesup 14057* (MO).

Vegetatively indistinguishable from many other small species of the genus, the short-stemmed flowers are easily recognized by the broad, more or less translucent green, inflated, sepaline tube suffused with dull purple below the middle.

The tube is slightly ventricose below the slight narrowing of the orifice. Therefore, this key feature, albeit slight, places this species best into the subsection *Saltatrices*. The short, free portions of the lateral sepals are reflexed with slender tails about as long as the tube. A large, thick, basal process protrudes beyond the base of the petals. The lip is elliptical and shallowly sulcate.

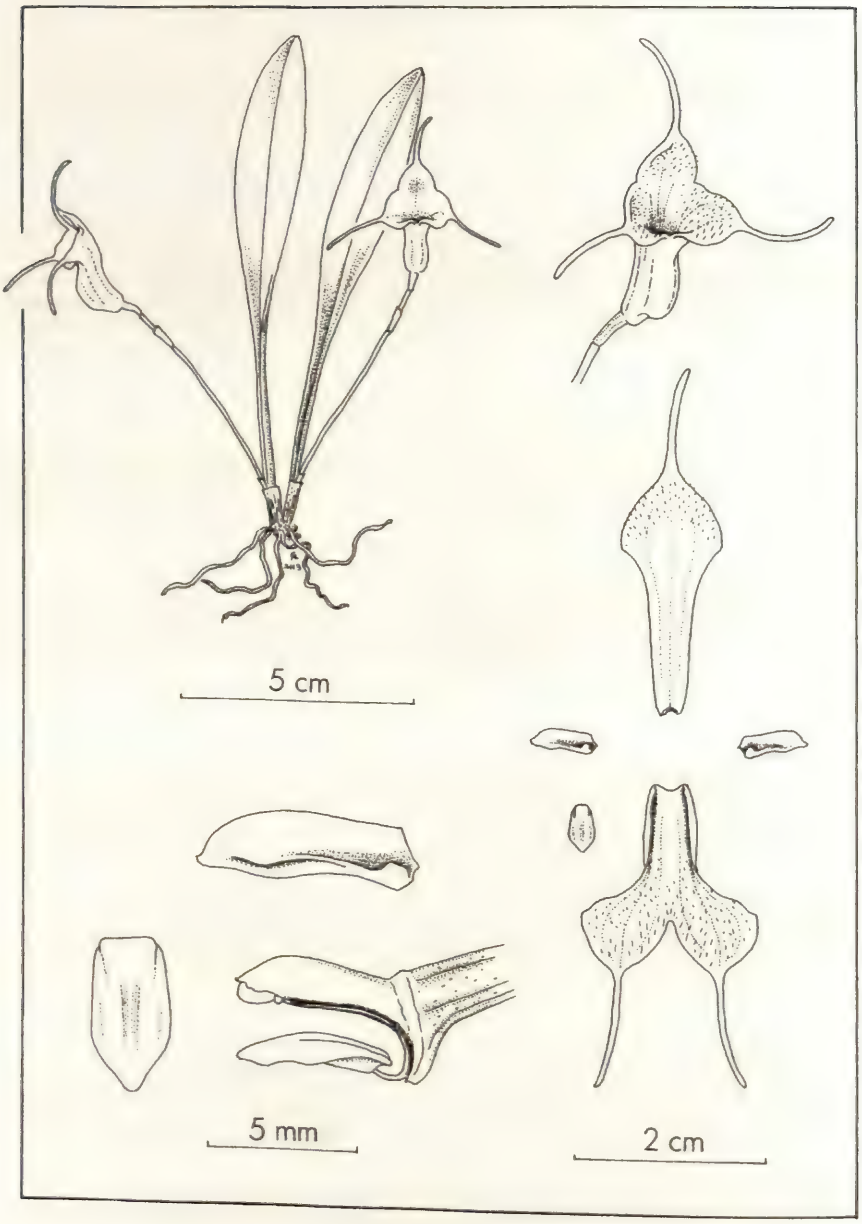


Plate 512. Masdevallia fuchsii

Masdevallia filaria Luer & Escobar, Orquideología 13: 70, 1978.

Ety.: From the Latin *filarius*, "with threads," referring to the slender sepaline tails.

Syn.: *Masdevallia ventricularia* var. *longicaudata* Lehm., Gard. Chron. sec. 3, 23: 238, 1898.

Ety.: From the Latin *longicaudatus*, "long-tailed," referring to the sepaline tails that are longer than those of *M. ventricularia*.

Syn.: *Masdevallia ventricularia* subsp. *filaria* (Luer & Escobar) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 38, 1986.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-12 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, obtuse, 1.4-1.8 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary, erect, tubular flower borne by a slender erect to suberect peduncle 3-8 cm long, with a bract above the base, from low on the ramicaul; floral bract 8-9 mm long; pedicel 8-12 mm long; ovary 5-6 mm long, yellow, dotted with purple; **sepals** red-purple or purple-brown, orange toward the base, glabrous externally, minutely pubescent within above the middle, the dorsal sepal oblong, concave, 27-33 mm long, 8-11 mm wide expanded, connate to the lateral sepals for 22-25 mm to create a cylindrical, ventricose, sepaline tube, constricted above the middle, the free portion broadly ovate, with the apex obtuse to subacute, contracted into a slender, red to orange tail 10-35 mm long, the lateral sepals 25-27 mm long, connate 19-20 mm into a lamina concave longitudinally, ca. 8 mm deep, 5-7 mm wide unexpanded, the apices acute, reflexed, contracted into tails 10-35 mm long; **petals** white, dotted with purple, oblong, obtuse, 7.25 mm long, 2.5 mm wide, the labellar margin with a longitudinal callus ending in an obtuse angle above the base; **lip** yellow, dotted with purple, oblong-ligulate, subacute to obtuse, 7-8.5 mm long, 2.5-3 mm wide, the disc shallowly sulcate, the base subcordate, hinged beneath on the end; **column** white, semiterete, 5 mm long, the foot 3 mm long with a short, incurved extension.

COLOMBIA: **Valle del Cauca**: between Uribe and Quebraditas, alt. 2100 m, 15 Aug. 1974, *R. Escobar et al. 456E* (Holotype: JAUM); Farallones de Cali, alt. 2000 m, 15 Oct. 1882, *F.C. Lehmann 2006* (holotype of var. *longicaudata* destroyed at B; isotyped: AMES, BR, NY, US); above town of Nariño, alt. 1600 m, 6 Apr. 1988, *C. Luer 13015* (MO); Lago Calima, collected by E. Valencia, cultivated at Colomborquídeas, 6 July 1996, *C. Luer 17971* (MO). **Antioquia**: Yarumal, alt. 2000 m, *F.C. Lehmann 7032* (AMES); Yarumal, El Oro, "La Bodega," alt. 1740 m, 2 Jan. 1974, *R. Escobar et al. 456* (JAUM); same collection, cultivated by O.J. Arango at La Estrella, 26 Sept. 1977, *C. Luer 1871* (SEL); Bretania, Farallones del Citará, alt. 2000-2200 m, Apr. 1975, *J.M. Serna s.n.* (JAUM); Libornia: cultivated by M. & O. Robledo at La Ceja, *R. Escobar 456G* (JAUM); same collection, cultivated 18 Oct. 1977, *C. Luer 1706* (SEL); Guatepé, Quebrada El Rosario, alt. 1800 m, Oct. 1974, *G. Misas & O.J. Arango s.n.* (JAUM); Guatepé, Santa Rita, Finca Montepinca, alt. 1850 m, 25 Apr. 1985, *Linda Albert Escobar et al. 5140* (HUA); Urrao, Quebradona, alt. 2400 m, collected by E. Valencia, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13009* (MO).
ECUADOR: **Carchi**: forest above Maldonado, alt. ca. 1500 m, cultivated at Ecuagenera, Gualaceo, 7 Mar. 2001, *C. Luer 19815* (MO).

Masdevallia filaria, relatively frequent in both the western and central cordilleras of Colombia, is closely related to the short-tailed Ecuadorian *M. ventricularia*. Although intermediate specimens occur, the two taxa are easily recognizable. The flowers of *M. filaria* are usually larger and more colorful with much longer sepaline tails, exceeding the sepaline tube. A painting of this species by Miss Woolward in her monograph of *The Genus Masdevallia* is identified as *M. ventricularia*. Within the deep sepaline tube, the petals and lip of these taxa are similar except for an obtuse angle instead of a distinct, acute, retrorse process at the base of the petals of *M. ventricularia*.

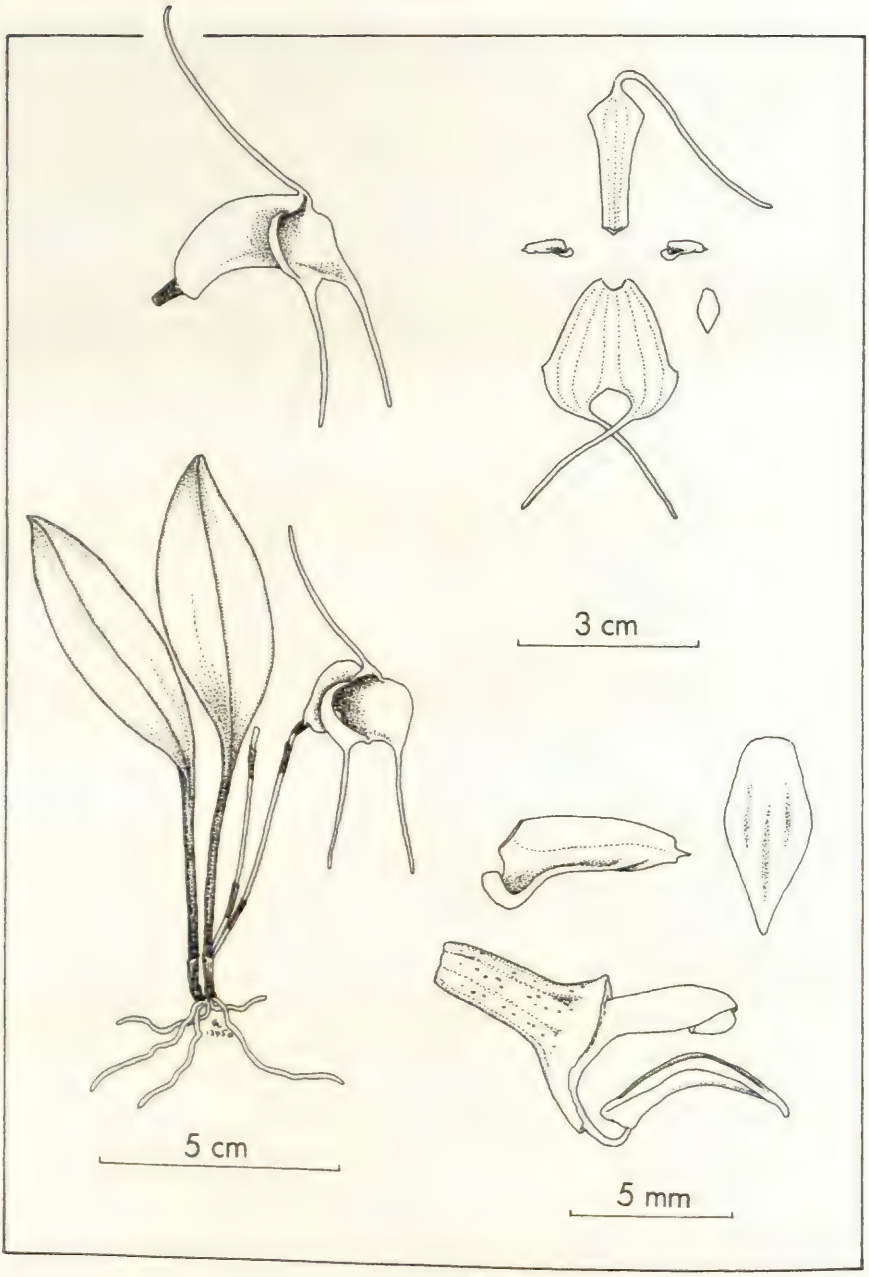


Plate 513. Masdevallia hirtzii

Masdevallia fuchsii Luer, Phytologia 39: 203, 1978.

Ety: Named in honor of Fred J. Fuchs, Jr. of Naranja, Florida, who, with Janet Kuhn, first collected this species.

Syn.: *Masdevallia saulii* Königer, Arcula 8: 226, 1999.

Ety.: Named for Saul Ruiz Perez of Lima, Peru, who also collected this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-11.5 cm long including the petiole 2-4 cm long, the blade narrowly elliptic-obovate, subacute, 13-17 mm wide, the base gradually narrowed into the slender petiole. **Inflorescence** a solitary, erect flower borne by a slender, suberect peduncle 4-4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 10-12 mm long; ovary 5-6 mm long; **sepals** white, veined in orange and suffused with bright orange toward the bases, glabrous externally, pubescent above the middle within, the dorsal sepal obovate, 23 mm long, 10 mm wide expanded, connate to the lateral sepals for 17 mm to form a sigmoid, ventricose, sepaline tube lightly constricted below the widely spread ostium, the free portion broadly ovate, the obtuse apex produced into a slender, recurved, yellow tail 10-12 mm long, the lateral sepals obliquely obovate, 20 mm long, connate 14 mm into a ventricose lamina, 18 mm wide expanded at the orifice, concave and 8 mm wide expanded within the sepaline tube, the free portions broadly ovate, each 9 mm wide, the obtuse apices produced into tails similar to that of the dorsal sepal; **petals** translucent yellowish white, oblong, 7.5 mm long, 2 mm wide, the apex obliquely subacute, with a thin, longitudinal lamella along the labellar margin terminating at the base in a broad, obtuse, inflexed tooth; **lip** oblong-ligulate, subacute, 5 mm long, 2.5 mm wide, white, suffused with yellow at the apex, and purple toward the truncate base, hinged beneath; **column** light yellow-green with a purple margin, semiterete, 5 mm long, the foot 1 mm long with a short, incurved extension.

PERU: **Huánuco**: cloud forest between Tingo Maria and Pucallpa, alt. 1700 m, March 1975, collected by F. Fuchs, J. Kuhn et al., cultivated at J & L Orchids, Easton, CT, 7 Nov. 1977, *C. Luer 2113* (Holotype: SEL); same collection, cultivated at Colomborquídeas, 20 Apr. 1988, *C. Luer 13277* (MO); between Tingo Maria and Pucallpa, alt. 1600 m, collected by S. Ruiz P., flowered in cultivation by *W. Königer WK-87* (holotype of *M. saulii*: M); between Tingo Maria and Pucallpa, alt. 1400 m, July 2000, *P. Cloes s.n.* (MO).

Masdevallia fuchsii grows sympatrically with *M. constricta* and *M. calosiphon* in an area now well-known in the department of Huánuco in the oriente of Peru. More similar to *M. constricta*, *M. fuchsii* is distinguished by the smaller size of the flowers with shorter tails. The broadly expanded apex of the sepaline tube of *M. fuchsii* is nearly half as long as the tube itself, while the tube of *M. constricta* is much longer than the expanded, free portion. The sepals of both species are white, variously lightly suffused with orange, and long-pubescent within. The petals and lip of the two species are similar, but the callus of the petals of *M. fuchsii* ends in a thick, retrorse process at the base, while the thick callus of *M. constricta* simply ends bluntly.

Masdevallia fuchsii also differs from *M. calosiphon* in a broadly expanded apex of the tube. The expanded apex of *M. calosiphon* is narrower and less than a third the length of the slender, colorfully striped tube. The callus of petals of *M. fuchsii* ends in a thick, retrorse, basal process, while the callus of the petals of *M. calosiphon* ends bluntly. *Masdevallia calosiphon* was mistakenly identified as *M. fuchsii* in *Thesaurus Masdevalliarum*.

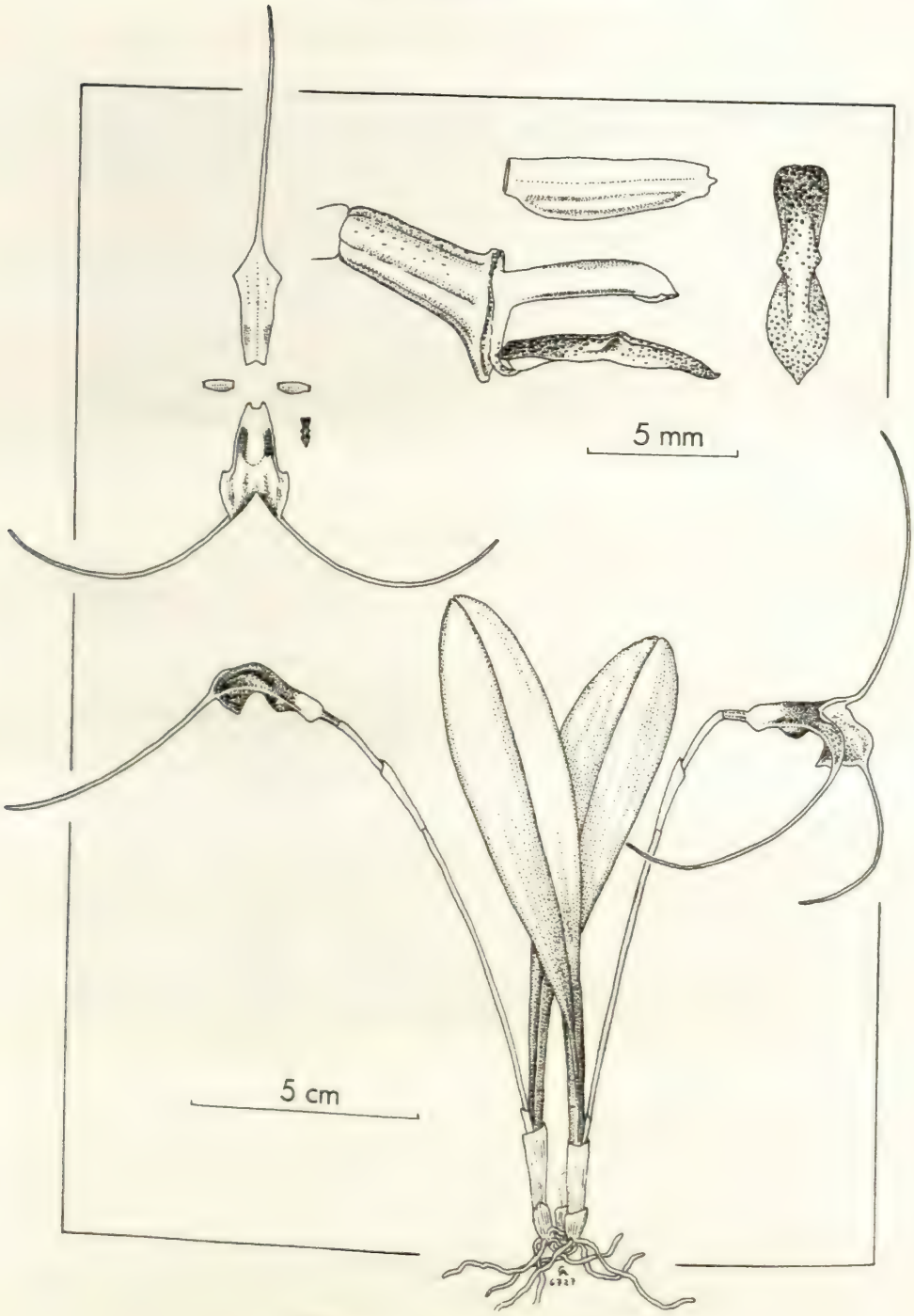


Plate 514. Masdevallia Xligiae

Masdevallia hirtzii Luer & Andreetta, Amer. Orchid Soc. Bull. 58: 137, 1989.

Ety.: Named in honor of Alexander C. Hirtz of Quito, Ecuador, who discovered this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, satiny green above, silvery green beneath, 5-10 cm long including the petiole 2-3.5 cm long, the blade elliptical, subacute, 1.5-2 cm wide, cuneate below into the blackish petiole. **Inflorescence** a very showy, solitary flower borne by a slender, erect to suberect peduncle 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 8-12 mm long; ovary dark purple, 3-4 mm long; **sepals** bright orange to red-orange, glabrous, the dorsal sepal oblong-obovate, curved, concave, 22 mm long, 9 mm wide, connate to the lateral sepals for 18 mm to form an arcuate, non-ventricose, cylindrical, sepaline tube dilated at the apex, the obtuse apex contracted into an erect or reflexed, slender, orange tail 2.5-3 cm long, the lateral sepals oblong-obovate, oblique, 27 mm long, connate 17 mm to form a lamina 20 mm wide expanded, the free portions oblique, acute, contracted into slender, orange tails 2 cm long; **petals** orange, cartilaginous, more or less oblong, 6 mm long, 1.75-3 mm wide, the apex truncate, apiculate, the labellar margin with a longitudinal carina, produced into a large, thick, incurved process above the base; **lip** orange, elliptical-ovate, acute, 6.5 mm long, 2.75 mm wide, the disc longitudinally shallowly sulcate, the base rounded, hinged beneath; **column** orange, semiterete, 4 mm long, the foot 3 mm long including a long, incurved extension.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, epiphytic in forest east of Los Encuentros, alt. 1550 m, 18 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13450* (Holotype: MO; Isotypes: K, NY, QCNE); Cordillera del Condor, epiphytic in forest east of Mayaicu, alt. 1500 m, 20 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13519* (MO); Cordillera del Condor, Patchicutza, alt. 1200-1500 m, June 1991, *A. Hirtz 5518* (MO).

This spectacular species, apparently endemic in the Cordillera del Condor of southeastern Ecuador, was collected simultaneously by Father Andreetta and Alexander Hirtz. The bright orange of the flowers is similar to that of several other species peculiar to the region, e.g., *M. aurea, M. limax, M. mendozae*, and *M. morochoi*. No doubt, all are hummingbird-pollinated.

The flowers of *M. hirtzii* are distinguished by the arcuate, non-ventricose sepaline tube with a widely expanded orifice. A large, thick, incurved process is present at the base of the petals. The petals, the simple, acute lip, and the column are also orange.

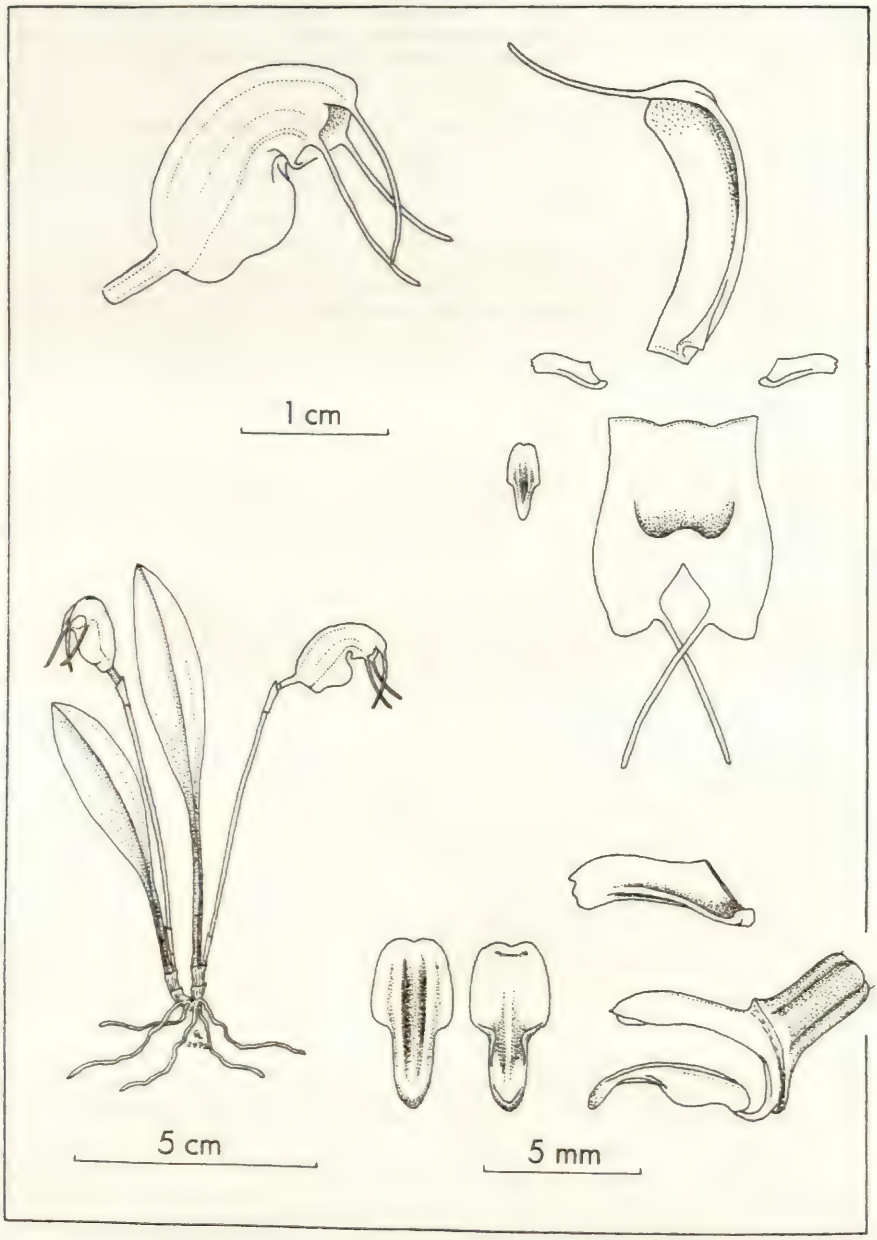


Plate 515. Masdevallia limax

Masdevallia Xligiae Luer & Escobar, Orquideología 15: 131, 1982.

Ety.: Named in honor of Sra. Ligia Moreno de Posada of Medellín, Colombia, in whose collection at Colomborquídeas this species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-12 cm long including the petiole 2-3 cm long, the blade elliptical, obtuse, 2-2.6 cm wide, cuneate below into the petiole. **Inflorescence** a large, solitary flower borne horizontally by a slender, suberect peduncle, 7-8 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 15-18 mm long; pedicel 30 mm long; ovary green, dotted with purple, 5 mm long; **sepals** yellow externally at the base, suffused and minutely blotched with brown-purple on the upper two-thirds, internally dull olive yellow, orange toward the base, microscopically pubescent, the dorsal sepal oblong-obovate, 24 mm long, 10 mm wide, connate to the lateral sepals for 18 mm to form a cylindrical tube, the free portion triangular, acute, contracted into an upcurved, slender, green tail ca. 5.5 cm long, the lateral sepals 28 mm long, connate 20 mm into an obovate, bifid lamina, ventricose near the middle, 17 mm wide expanded, the free portions ovate, 12 mm wide, with acute apices contracted into recurved tails similar to that of the dorsal sepal; **petals** white, oblong, 7 mm long, 2 mm wide, the apex truncate, apiculate, the labellar half with a longitudinal callus; **lip** cream-colored, diffusely dotted with purple, narrowly pandurate, 7 mm long, 2 mm wide, divided by a pair of obtuse, marginal folds near the middle into an ovate, acute epichile, and an oblong hypochile, the base subcordate, hinged beneath; **column** white, marked with purple, semiterete, 6 mm long, the foot 3 mm long with an incurved extension.

COLOMBIA: **Antioquia**: without locality, cultivated at Colomborquídeas, 20 Nov. 1981, *C. Luer 6727* (Holotype: JAUM; Isotype: SEL); same plant, cultivated at Colomborquídeas, 25 Apr. 1988, *C. Luer 13295* (MO); plants with smaller flowers, cultivated at Colomborquídeas, 10 Apr. 1988, *C. Luer 13186* (MO).

Masdevallia Xligiae appeared as a seedling growing among the roots of a plant of *Dracula chimaera* (Rchb.f.) Luer cultivated in an open greenhouse at Colomborquídeas above Medellín, Colombia. At that time it was assumed to have been a seedling collected with the *Dracula*, and it was described as a new species. Because the strange flowers were unique in the genus, a unispecific section was created for it.

Since that time, other volunteer seedlings producing similar flowers, but of different colors and sizes, have appeared. It soon became apparent that these plants were the product of random pollinization of various species by tiny fruit-flies. Although not yet proved, it is practically certain that *M.* Xligiae is a spontaneous hybrid, but the parents are still unidentified. It is probably a cross between a species of subsection *Saltatrices* (to give the long, constricted, tubular, sepaline tube), and possibly a species of section *Polyanthae* (to give the pandurate lip with marginal folds). Volunteer hybrid seedings of other species of *Masdevallia* (including unmistakable progeny of *M. pinocchio*) and a far greater assortment of hybrid seedlings of *Dracula* have also appeared.

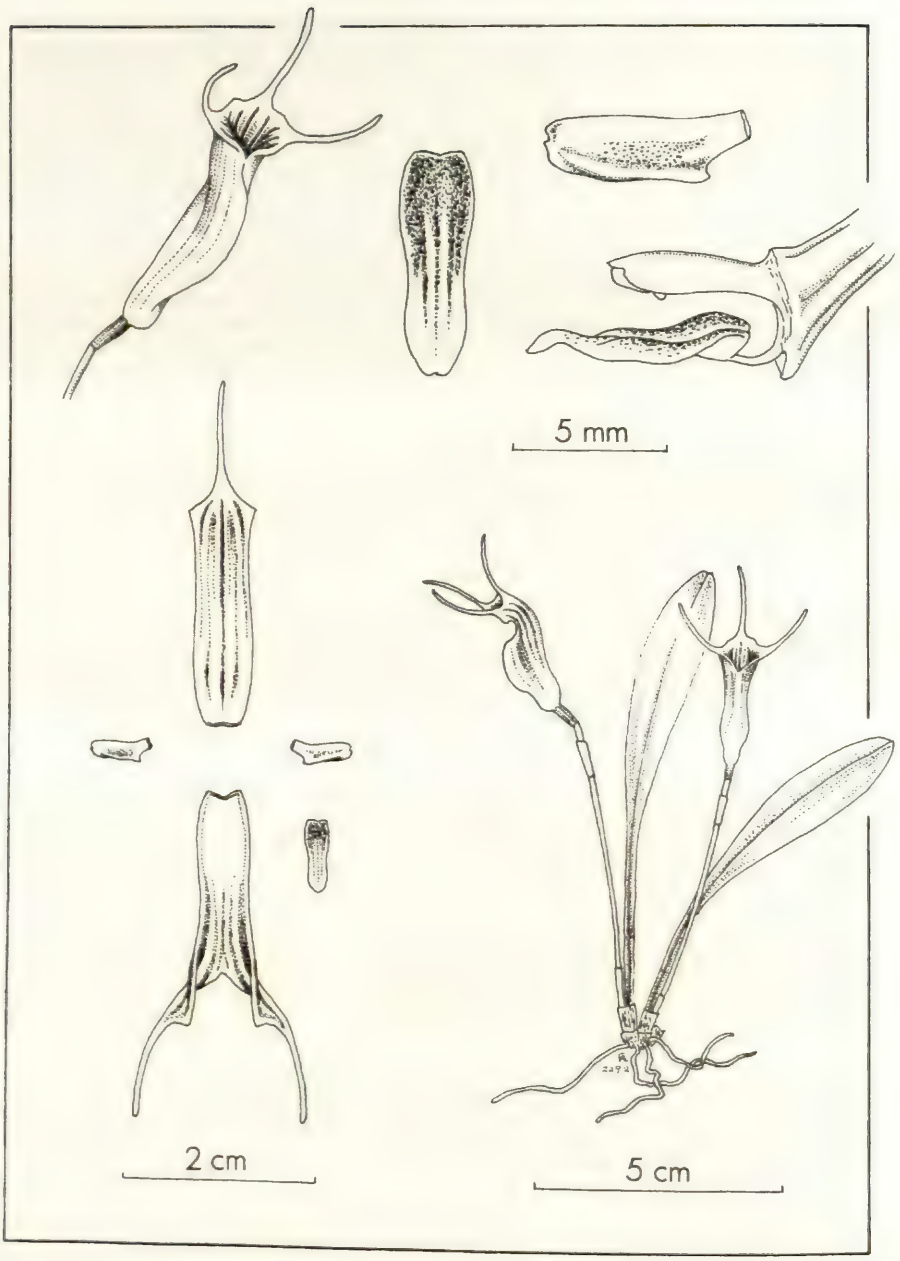


Plate 516. Masdevallia marthae

Masdevallia limax Luer, Phytologia 39: 209, 1978.

Ety.: From the Latin *limax*, "a slug," in allusion to the appearance of the flower.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-8 cm long including the petiole 1.5-2 cm long, the blade elliptical, acute, 1-1.8 cm wide, the base narrowly cuneate into the blackish petiole. **Inflorescence** a solitary, bright orange, tubular flower borne more or less transversely by a slender, erect peduncle 3-5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 3-6 mm long; pedicel 8-12 mm long; ovary 3-5 mm long; **sepals** orange, glabrous, shortly pubescent within on the free portions, the longitudinal veins prominent externally, the dorsal sepal oblong, concave, carinate, 16-23 mm long, 4-6 mm wide expanded, connate to the lateral sepals for 13-20 mm to form a cylindrical, ventricose tube, somewhat bent forward above the middle to form a hooded ostium, the free portion transversely ovate, with the obtuse apex contracted into a slender, orange tail 7-13 mm long, the lateral sepals connate 9-12 mm into an oblong, ventricose, lamina 13-16 mm long, 11-13 mm wide expanded, the free portions more or less transverse with the apices abruptly contracted into tails similar to that of the dorsal sepal; **petals** light orange, oblong, oblique, 4.5 mm long without the basal tooth, 1.5 mm wide, the truncate apex obscurely trilobed, the labellar margin with a longitudinal carina ending in an elongate, triangular, retrorse tooth with a thickened, inflexed apex protruding behind the base; **lip** orange, ovate, 5.5 mm long, 2.5 mm wide, narrowed above the middle with deflexed margins, the apex narrowly oblong, obtuse, the disc broadly and shallowly channeled between low, parallel calli, the base truncate, hinged beneath; **column** greenish white, semiterete, 4 mm long, the foot 2 mm long with an incurved extension.

ECUADOR: **Tungurahua**: epiphytic on the slopes above Río Pastaza near Baños, alt. 2000 m, 1974, obtained by A. Andreetta, cultivated by B. Malo at Tarqui near Cuenca, 5 Feb. 1978, *C. Luer 2472* (Holotype: SEL); same collection, cultivated by W. Köniğer in Munich, Sept. 1987, *C. Luer 2472A* (MO); between Baños and Mera, Río Cashaurco, alt. 1450-1550 m, 4 Sept. 1976, *B. Øllgaard & H. Balslev 9276* (AAU, NY). **Pastaza**: north of Topo, along Río Zuñag, alt. 2100 m, 20 Feb. 1990, *S. Dalström, & L. Årnby 1424* (MO). **Morona-Santiago**: Valle del Paute, alt. 2200 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13631* (MO); above Campamento Guarumales, alt. 2000 m, 24 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15252* (MO).

This species occurs locally, sometimes abundantly, in wet forests on both sides of the central cordillera of Ecuador. It is characterized by the small, bright orange, tubular, arcuate flower that is inflated below a constriction between the middle and distal quarter of the tube. The free parts of the sepals are very short with slender, forwardly held tails about half as long as the tube. The petals have a long, retrorse, basal process, and the lip is narrowed above the middle to an acute tip.

Masdevallia limax and its close relatives *M. maxilimax* and *M. mendozae* grow and flower readily in cultivation. They are probably pollinated by hummingbirds. Bright orange, arcuate tubular flowers of gesneriads and pitcairnias grow in the same locality.

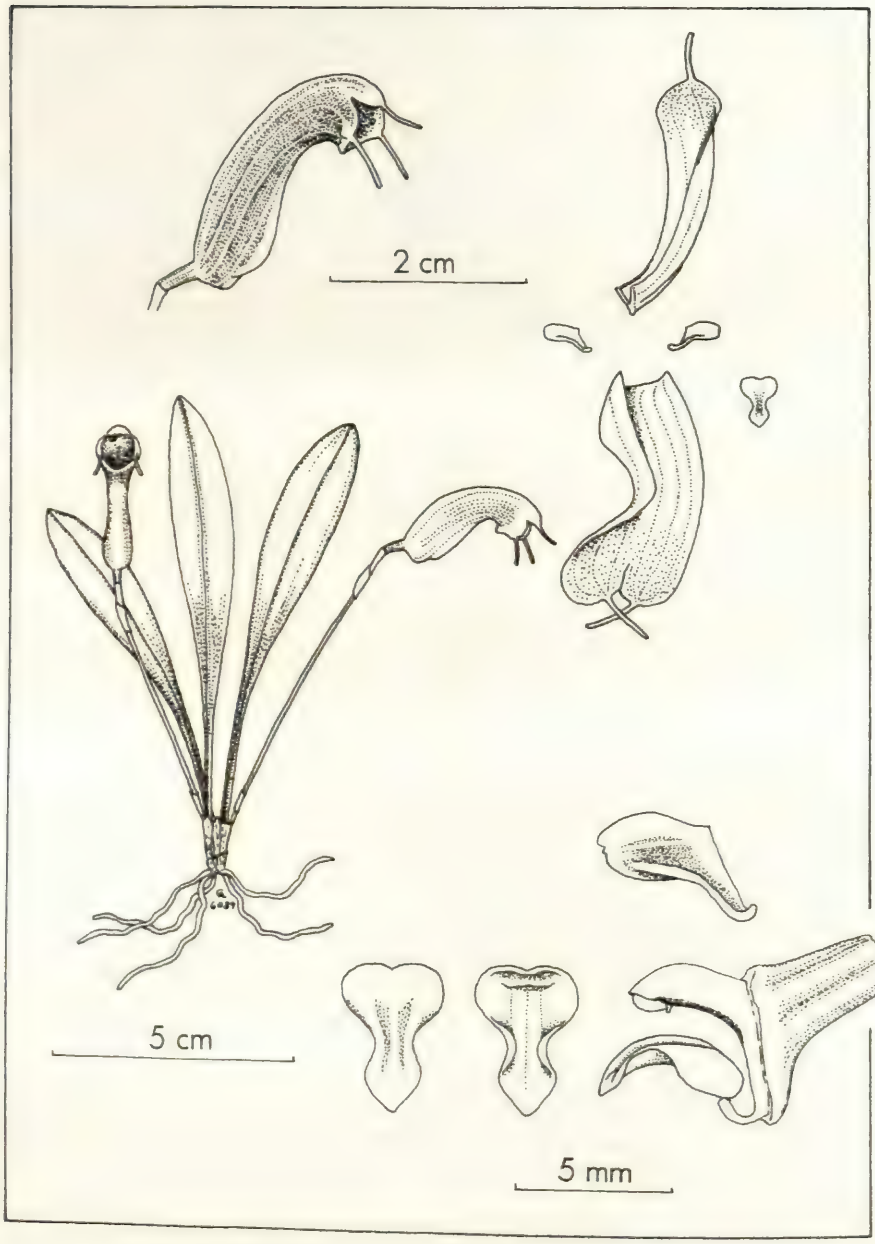


Plate 517. Masdevallia maxilimax

Masdevallia marthae Luer & Escobar, Orquideología 13: 84, 1978.

Ety.: Named in honor of Sra. Martha Posada de Robledo of Medellín, Colombia, who has cultivated this species in her collection at La Ceja since its discovery.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-9 cm long including an indistinct petiole 1.5-3 cm long, the blade narrowly obovate, subacute to obtuse, 1-1.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 3.5-5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 9-10 mm long; pedicel 10-12 mm long; ovary 5-6 mm long; **sepals** glossy yellow-green, lightly veined in brown, glabrous externally, cellular-pubescent within, the dorsal sepal narrowly oblong, 25 mm long, 6-7 mm wide, connate to the lateral sepals for 23 mm to form an erect, curved, ventricose, cylindrical tube constricted below the ostium, lightly compressed, the free portion transversely triangular, the obtuse apex contracted into a slender, forwardly directed, green tail 12-13 mm long, the lateral sepals 25 mm long, connate 18 mm into an oblong, ventricose synsepal, 10 mm wide expanded, the free portions obtuse, with the tails forwardly directed, similar to that of the dorsal sepal; **petals** yellow, dotted with red, oblong, 6.5 mm long, 2 mm wide, the truncate apex obscurely bilobed, the lower margin with a longitudinal callus ending in an obtuse angle above the base; **lip** dark red below the middle, yellow above the middle, flecked with purple along the 3 veins, oblong, 7.5 mm long, 2.25 mm wide, the apex obtuse, the disc shallowly sulcate longitudinally, the base truncate, hinged on the end; **column** white, semiterete, 5 mm long, the foot 2 mm long with an incurved extension.

COLOMBIA: **Antioquia**?: without collection data, cultivated by M. & O. Robledo at La Ceja, 1971, *R.* Escobar 452 *(Holotype: JAUM); same collection,* cultivated by M. & O. Robledo at La Ceja, 20 Jan. 1978, *C. Luer 2292* (SEL); Urrao, collected by M. Zapata, cultivated by M. & O. Robledo at La Ceja, 9 Apr. 1988, *C. Luer 13106* (MO). **Risaralda**: Pueblo Rico, road to TV tower, alt. 2400 m, 14 May 1993, *C.* Luer, J. Luer, R. Escobar & A. De Wilde 16833 (MO).

This species had been cultivated by Martha Robledo de Posada and Dr. Oscar Robledo in their collection at La Ceja since 1971. Unfortunately, no collection data were known. In 1993, the species was discovered in the department of Risaralda in the Central Cordillera where it is probably endemic.

Masdevallia marthae is closely allied to the other members of subsection. It is characterized by an erect, ventricose, sepaline tube. From the other species it is distinguished by the yellow-green sepals lightly striped in brown along the veins, and with slender, forwardly directed tails. The petals are callous along the lower margin, which terminates in a short, obtuse tooth. The lip is oblong and featureless.

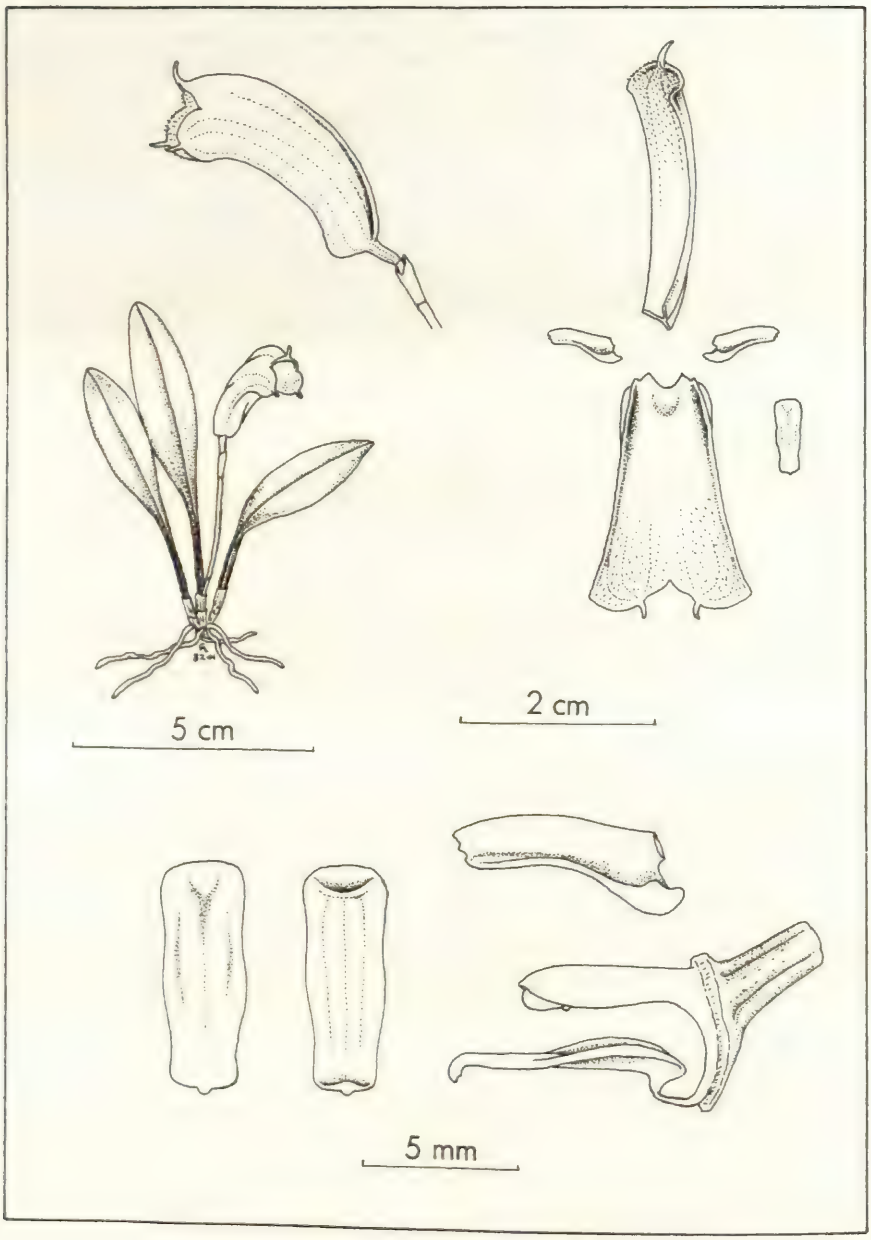


Plate 518. Masdevallia mendozae

Masdevallia maxilimax (Luer) Luer, Lindleyana 4: 114, 1989.

Bas.: *Masdevallia limax* Luer subsp. *maxilimax* Luer, Lindleyana 3: 40, 1988.

Ety.: From the Latin *maxi-*, "large-," and the epithet *limax*.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-8 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, acute, 1-1.8 cm wide, the base narrowly cuneate into the blackish petiole. **Inflorescence** a solitary, bright orange, tubular flower borne by a slender, erect peduncle 3-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 5-6 mm long; pedicel 10-14 mm long; ovary 4-5 mm long; **sepals** orange, glabrous externally, the free portions shortly pubescent within, the longitudinal veins prominent externally, the dorsal sepal oblong, concave, carinate, 30-32 mm long, 7 mm wide expanded, connate to the lateral sepals for 23-26 mm to form a cylindrical, arcuate, lightly ventricose tube, the free portion transverse, with the obtuse apex contracted into a slender, orange tail 5 mm long, the lateral sepals connate 20-23 mm into an oblong lamina 25 mm long, 20 mm wide, the free portions more or less transverse with the apices abruptly contracted into a tail similar to that of the dorsal sepal; **petals** white, oblong, oblique, 3.5 mm long without the basal tooth, 2.25 mm wide, the truncate apex obscurely trilobed, the labellar margin with a longitudinal carina ending in an elongate, triangular, retrorse tooth with a thickened, inflexed apex protruding behind the base; **lip** orange, obpyriform, 5 mm long, 3.5 mm wide above the base, narrowed above the middle with deflexed margins, the apex ovate, obtuse, the disc broadly and shallowly channeled between low, parallel calli, the base subtruncate, hinged beneath; **column** greenish white, semiterete, 4 mm long, the foot 3 mm long with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest, Tukumpas, near Río Calagrás, alt. 2000 m, collected by A. Andreetta, cultivated in Cuenca, 4 May 1981, *C. Luer 6089* (Holotype: SEL); same collection, cultivated by W. Köniğer in Munich, Germany, Sept. 1987, *C. Luer 6089* (MO); Río Calagrás, alt. 2000 m, 1985, collected by A. Andreetta & H. Serrano, cultivated at Paute, 24 May 1988, *C. Luer 13632* (MO); north of Gualaquiza, alt. 1800 m, 8 Mar. 1990, *S. Dalström & L. Ärnby 1465* (MO); north of Gualaquiza, Tumbes, alt. 1900 m, 15 Feb. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1914* (MO).

This species was originally thought to be merely a large variation of *M. limax*. The two concepts are indeed very similar, but the shapes of the bright orange tubes distinguishe them. Vegetatively indistinguishable from other similar members of the subsection, *M. maxilimax* is recognized by the comparatively slender, elongated, sepaline tube that is ventricose in the lower third and constricted in the upper third. The tube of *M. limax* is much shorter and broadly inflated in the lower two-thirds, and constricted near the ostium. The protruding tails are short and similar. The petals and lip of the two concepts are basically similar. The pandurate lip of *M. maxilimax* is broader and convex above the base.

Masdevallia maxilimax is found locally only in the region of the Río Calagrás in southeastern Ecuador. The two species are not found intermixed.

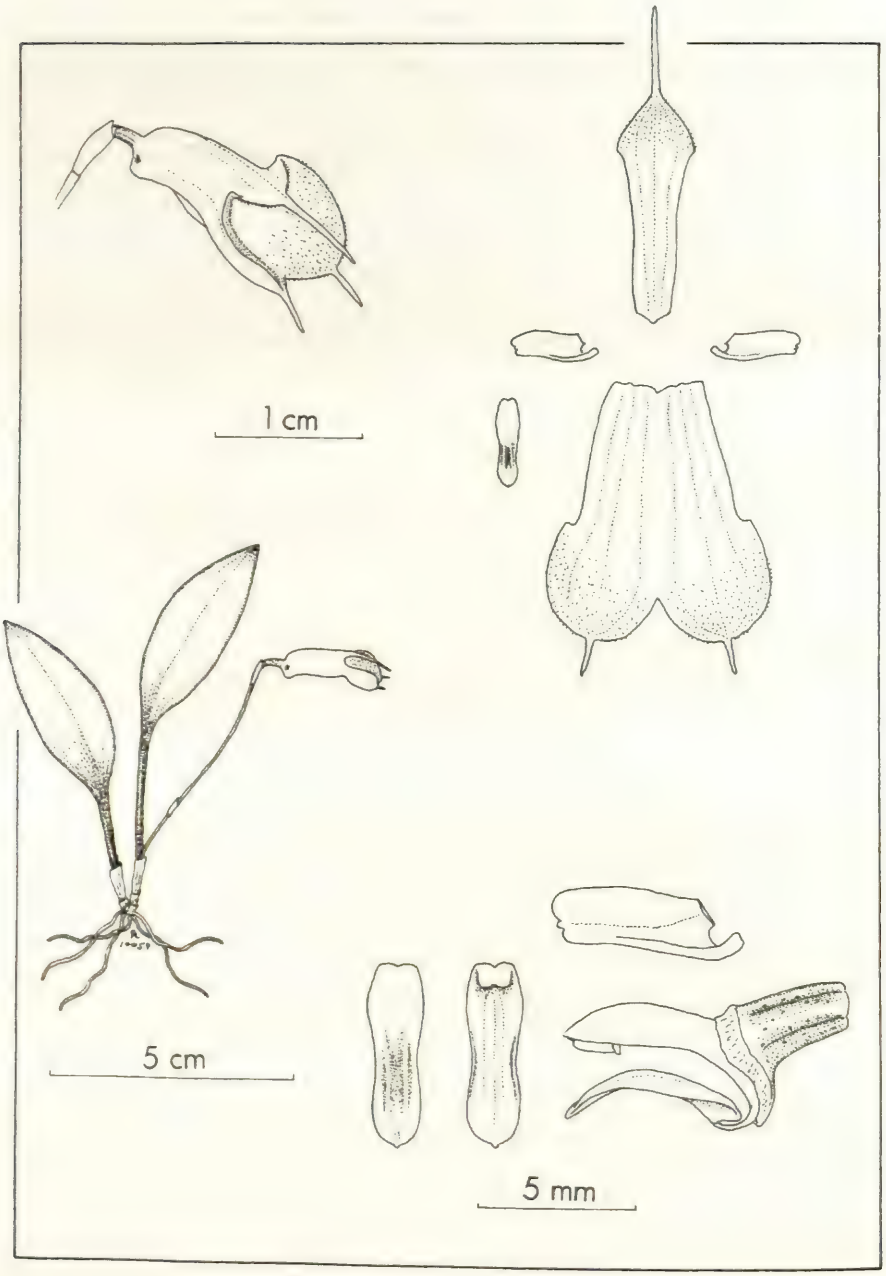


Plate 519. Masdevallia morochoi

Masdevallia mendozae Luer, Phytologia 54: 382, 1983.

Ety.: Named in honor of Hartman Eudaldo Mendoza of Vilcabamba, Ecuador, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, 1-1.7 cm long, enclosed by 2 close, tubular sheaths. **Leaf** erect, coriaceous, 3-5.5 cm long including the petiole 1-1.5 cm long, the blade narrowly elliptical, obtuse, 1.2-1.6 cm wide, cuneate below into the more or less blackish petiole. **Inflorescence** a solitary, bright orange, tubular flower borne by a slender peduncle 3 cm long, with a bract near the base, from low on the ramicaul; floral bract close, tubular, 5 mm long; pedicel 5 mm long; ovary 3-4 mm long; **sepals** orange, glabrous externally, shortly pubescent within above the middle, carinate along the midveins, the dorsal sepal linear-oblong, curved, 27 mm long, 8 mm wide expanded, connate to the lateral sepals for 22 mm to form a curved, cylindrical tube, the free portion rounded, abruptly contracted into a 2 mm long, recurved tail, the lateral sepals connate 19 mm into a more or less oblong, curved lamina 24 mm long, 14 mm wide expanded, the free portions rounded, convex, abruptly contracted into tails 1.5 mm long; **petals** orange, oblong, 6.5 mm long, 1.75 mm wide, the truncate apex lightly trilobed, with a carina along the labellar margin becoming a large, thick, incurved tooth extending beyond the unguiculate base; **lip** orange, oblong, 7.5 mm long, 2.9 mm wide, the apex truncate, lightly decurved with a low callus, the base truncate, thickened, concave on the end and hinged below, the disc with a pair of low, parallel, indistinct calli; **column** semiterete, 5.5 mm long, the foot 3 mm long, with a slender, incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in high trees, Loma del Aguila, road to Valle de Numbala, east of the pass, alt. 2200 m, Sept. 1979, collected by H. Mendoza, cultivated by A. Andreetta in Cuenca, 27 Oct. 1982, *C. Luer 8201* (SEL); collected by D. D'Alessandro, cultivated by A. Andreetta at Paute, 24 May 1988, *C. Luer 13633* (MO); obtained from A. Andreetta, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13005, 13006* (MO).

Originally known in 1979 as a single, moribund plant, *M. mendozae* is now widely distributed in many collections. It grows readily in cultivation and flowers in profusion. It is apparently endemic in a small area of cloud forest of southeastern Ecuador where it has subsequently been found to be locally abundant.

Masdevallia mendozae is most closely related to *M. maxilimax*, but it is distinguished by the orange, tubular, non-ventricose flower with short, rounded, free portions with two-millimeter-long tails. A thick, incurved tooth is present at the base of the petal. The lip is simply oblong.

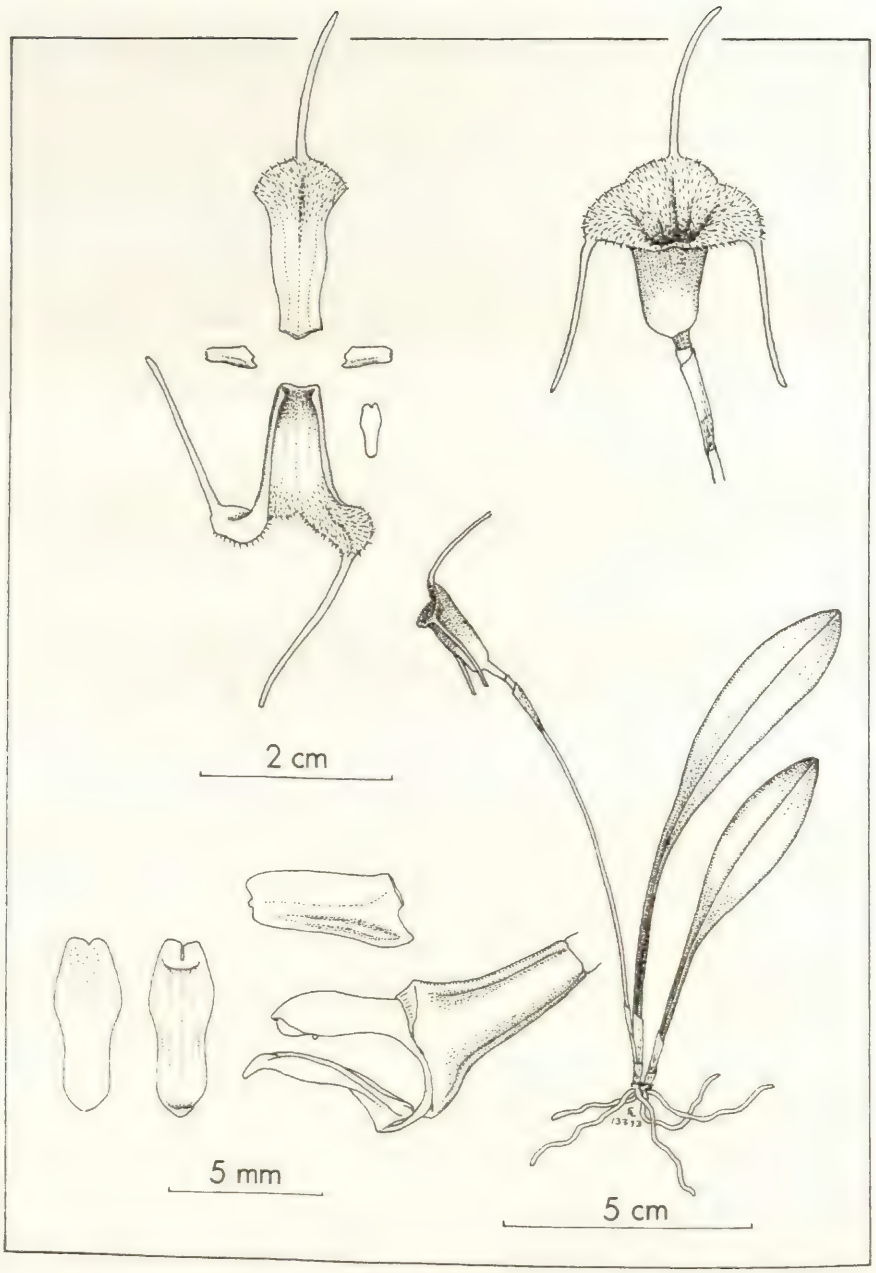


Plate 520. Masdevallia Xmystica

Masdevallia morochoi Luer & Andreetta, Lindleyana 4: 116, 1989.

Ety.: Named in honor of Luis Morocho of Paute, Ecuador, co-discoverer of this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 8-12 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 3.5-6.5 cm long including the petiole 1-2.5 cm long, the blade elliptical-ovate, acute, 1.2-1.6 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4-4.5 cm long, with a bract above the base, from the base of a ramicaul; floral bract tubular, 5 mm long; pedicel 5 mm long; ovary 3.5 mm long; **sepals** yellow-orange, short-pubescent within above the middle, the dorsal sepal oblong-obovate, 15 mm long, 5 mm wide expanded above the tube, connate to the lateral sepals for 11 mm to form a horizontal, shallowly ventricose, sepaline tube, the apex triangular, subacute or obtuse, contracted into a slender, forward tail 6 mm long, the lateral sepals oblong-obovate, 18 mm long, 8 mm wide, connate 15 mm into a lightly concave lamina, the free portions suborbicular, the rounded apices abruptly contracted into slender, forward tails 2 mm long; **petals** orange, cartilaginous, oblong, 5 mm long, 2 mm wide, the apex truncate, minutely apiculate between apical lobules, the labellar half with a longitudinal callus ending in a retrorse process above the base; **lip** orange, narrowly oblong, 6 mm long, 2 mm wide, the apex obtuse with a small, marginal apiculum, the disc with a longitudinal pair of calli above the middle, the base subcordate, hinged beneath; **column** semiterete, 5 mm long, the foot 2 mm long including the incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera del Condor, Río Tuntaime, collected by A. Andreetta, M. Portilla & L. Morocho 1707, cultivated by A. Andreetta at Paute, 24 Jan. 1989, *C. Luer 14059* (Holotype: MO).

This species is similar in color to several other species found also in southeastern Ecuador. They are characterized by bright orange, tubular flowers that most likely are hummingbird-pollinated.

Masdevallia morochoi is distinguished by the broad, orbicular, free portions of the lateral sepals that protrude beyond the sepaline tube. The rounded apices are abruptly contracted into tiny tails only two millimeters long. The tail of the dorsal sepal is six millimeters long. Similar to the others, the petals possess a retrorse process at the base, while the lip is simply oblong.

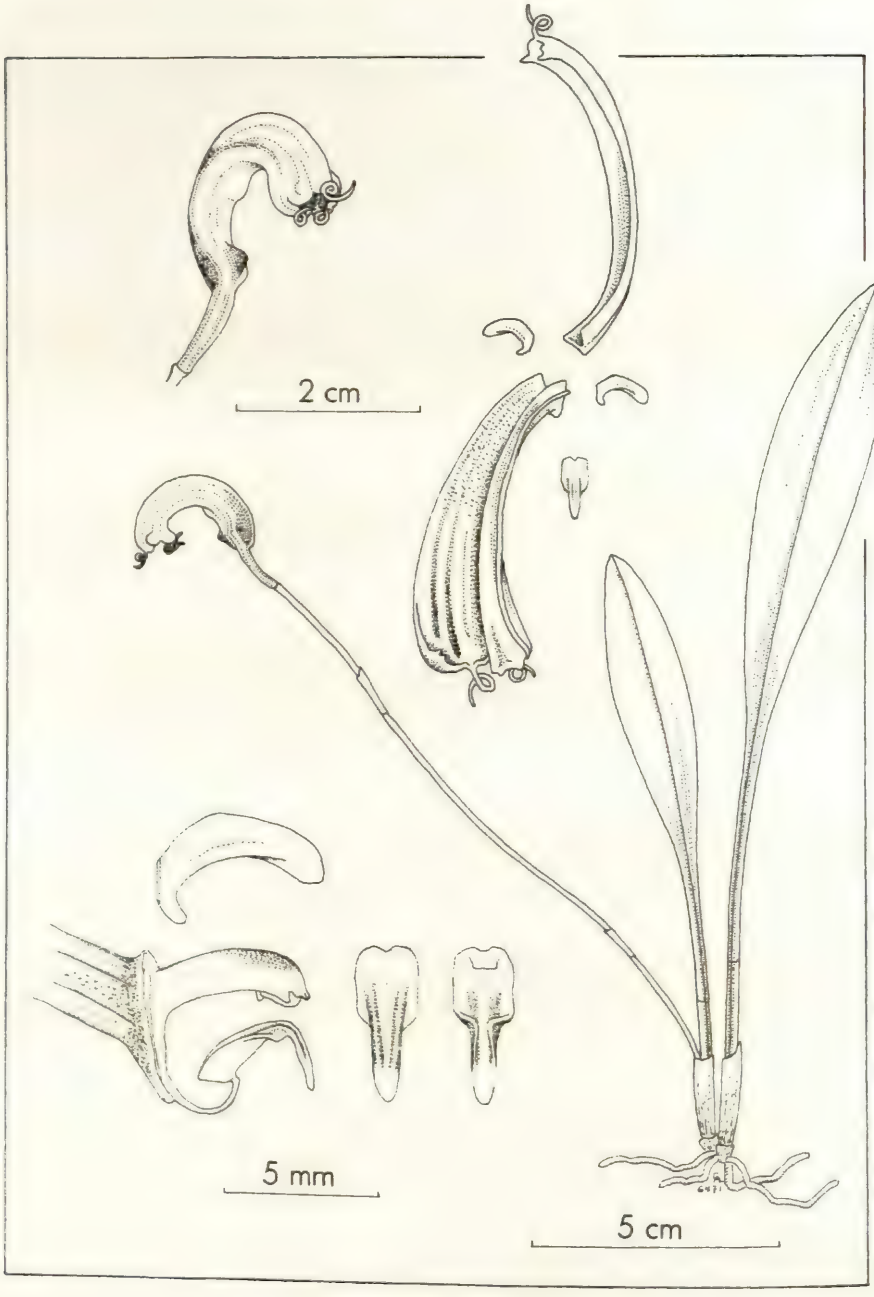


Plate 522. Masdevallia notosibirica

Masdevallia Xmystica Luer, Lindleyana 4: 119, 1989.

Ety.: From the Latin *mysticus*, "mystic," referring to the mysterious origin of the plant.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 5-9.5 cm long including the petiole 1.5-3.5 cm long, the blade narrowly elliptical-obovate, acute, 1.2-1.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 4-6.5 cm long, with a bract above the base, from the base of a ramicaul; floral bract tubular, 8-9 mm long; pedicel 10-13 mm long; ovary 4 mm long; **sepals** bright purple, orange toward the base, densely short-pubescent within, the dorsal sepal oblong, 17 mm long, 9 mm wide expanded, connate to the lateral sepals for 15 mm to form a suberect, cylindrical, sepaline tube, the apex rounded, abruptly contracted into a slender, erect, green tail 15 mm long, the lateral sepals 17 mm long, connate 13 mm into the cylindrical tube, minimally ventricose, if at all, the free portions ovate, obtuse, oblique, 6 mm wide, the apices contracted into slender, reflexed tails 17 mm long; **petals** white with pink dots, cartilaginous, oblong, 5 mm long, 2 mm wide, the apex truncate, obscurely tridentate, the labellar half with a low, longitudinal callus; **lip** white with pink dots on the basal third, oblong, 5.5 mm long, 2 mm wide, the apex yellow, rounded, the disc essentially featureless, the base subcordate, hinged beneath; **column** white, semiterete, 4 mm long, the foot equally long including the incurved extension.

COLOMBIA: Without collection data, cultivated by J & L Orchids, Easton, CT, 11 Dec. 1988, *C. Luer 13793* (Holotype: MO).

This taxon was cultivated from seeds from a ripe capsule by J & L Orchids. The fruiting plant was discovered in a collection of plants purchased in Colombia from a collector without collection data, but labeled "Masdevallia ventricularia." Unfortunately, the mother plant became mixed with the others, and is now not identifiable.

Numerous seedlings from this capsule have begun to flower, all bearing similar, pretty, purple and orange flowers. Very possibly these plants are the result of a natural hybridization between *Masdevallia filaria* and some bright purple, densely pubescent species.

Spontaneous seedlings of a *Masdevallia*, similar to the large-flowered *M.* X*ligiae* have been appearing in the open greenhouse at Colomborquídeas in the mountains above Medellín Colombia. The flowers vary in size from "small" to as large as those of *M.* X*ligiae*, suggesting that *M. filaria* is a receptive, successful and non-discriminating parent for hybridization.

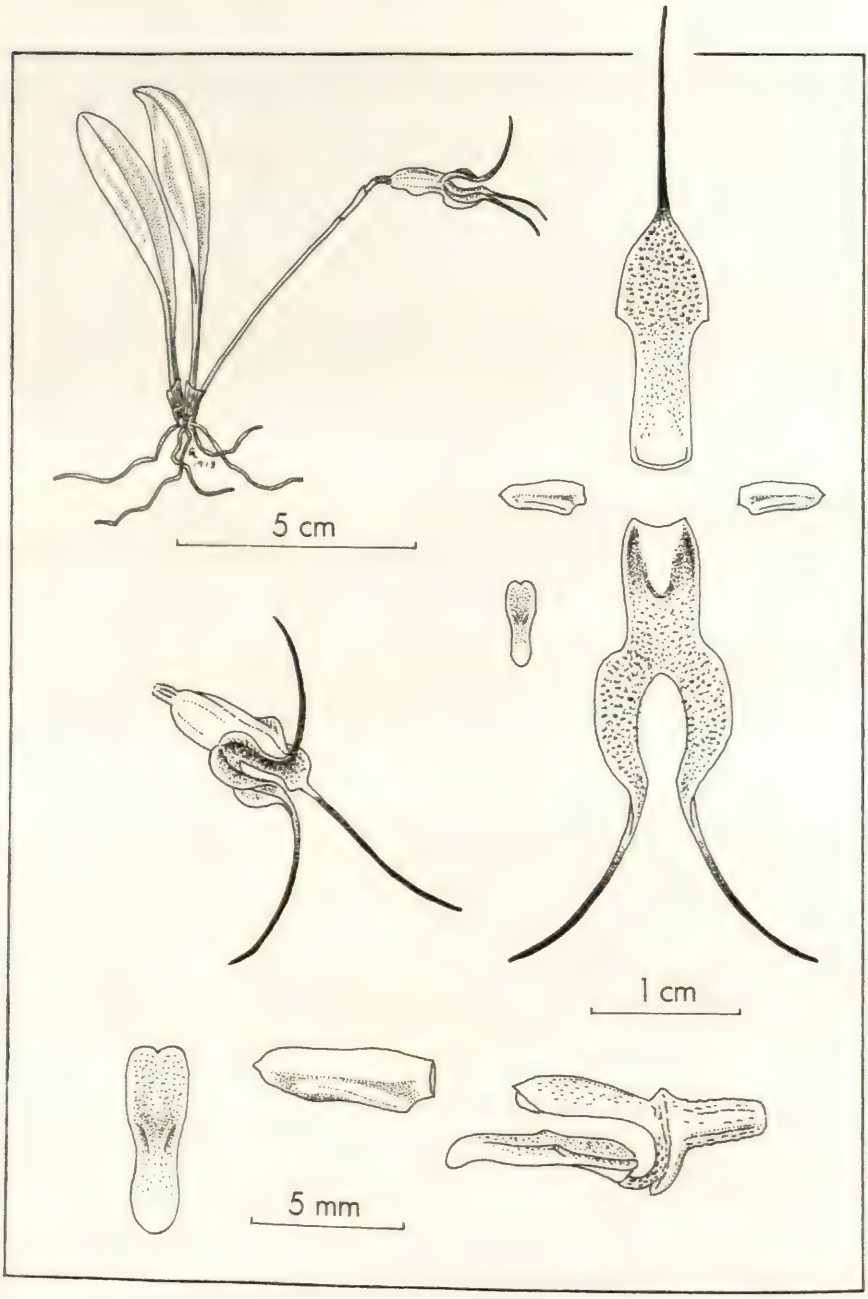
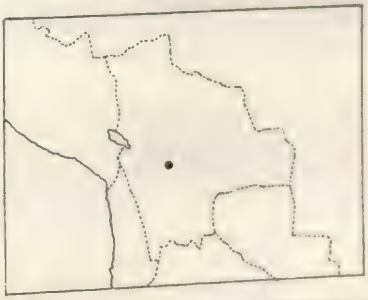


Plate 523. Masdevallia os-draconis

Masdevallia notosibirica Maekawa & Hashimoto, J. Jap. Bot. 48: 27, 1973.

Ety.: Named for the community of Siberia in the department of Santa Cruz, Bolivia, where the species was discovered. From the Greek *noto-*, "southern," referring to the Bolivian Siberia as opposed to the Asiatic Siberia.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, erect, slender, 2-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 10-16 cm long including the petiole 4-5 cm long, the blade elliptical, subacute, 1.5-2 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a single flower produced by a slender, suberect peduncle 8-12 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 10-12 mm long; pedicel 3-4 cm long; ovary 9-12 mm long; **sepals** bright pink, glabrous, pubescent within below the middle, all three sepals deeply connate into a narrow, arcuate tube, the dorsal sepal oblong, arcuate, concave, carinate, 38-42 mm long, 7-8 mm wide expanded, connate to the lateral sepals 37-41 mm to form a small ostium to the sepaline tube, the apex broadly obtuse, undulate and crisped, contracted into a slender, yellow, curled tail ca. 3 mm long, the lateral sepals connate the full length of 32-36 mm into a narrowly obovate lamina, 15-20 mm wide expanded near the apex, the broadly obtuse apices, margins and tails similar to those of the dorsal sepal; **petals** white, oblong-arcuate, 5-6 mm long, 1.5 mm wide, the apex obtuse to rounded, the labellar margin with a longitudinal callus ending in a thick, obtuse process at the base; **lip** white, suffused with rose, subovate, 5 mm long, 2 mm wide, with revolute margins at the middle, narrowly oblong above the middle with the apex rounded, the disc shallowly sulcate, oblong below the middle with the base subcordate, hinged beneath; **column** white, suffused with rose, semiterete, 5 mm long, the foot 5 mm long including a slender, incurved extension.



BOLIVIA: **Santa Cruz**: near Siberia above Comarapa, 11 Oct. 1971, *F. Maekawa, M. Nishida & T. Hashimoto s.n.* (Holotype: TI); Cumbe de San Mateo, Vallegrande, alt. 2800 m, Feb. 1950, *M. Cárdenas 4000* (AMES); near Siberia above Comarapa, collected by Fred Fuchs, Jr. et al., cultivated by J & L Orchids, Easton, CT, Nov. 1977, *C. Luer 2917* (SEL); above Comarapa, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13054* (MO).

A collection of this unique species was first made by Dr. Martín Cárdenas of Cochabamba, Bolivia, in 1950. The specimen lay unidentified at AMES for 20 years before the Japanese team led by Dr. Fumio Maekawa found the plant in 1971. It is apparently endemic in a small area of cloud forest at the southern extreme of the rich, north slope of the Andes that stretches to the southeast from Peru between cold paramo and hot, humid lowlands.

Vegetatively not remarkable, this species is readily recognized by the bright pink, more or less arcuate, sepaline tube that is somewhat inflated toward the apex. The apices of the sepals form a small aperture into the flower that probably accommodates the bill of a hummingbird. The tails of the sepals that seemingly guard the entrance to the flower are short and curled like three tiny pigs' tails.

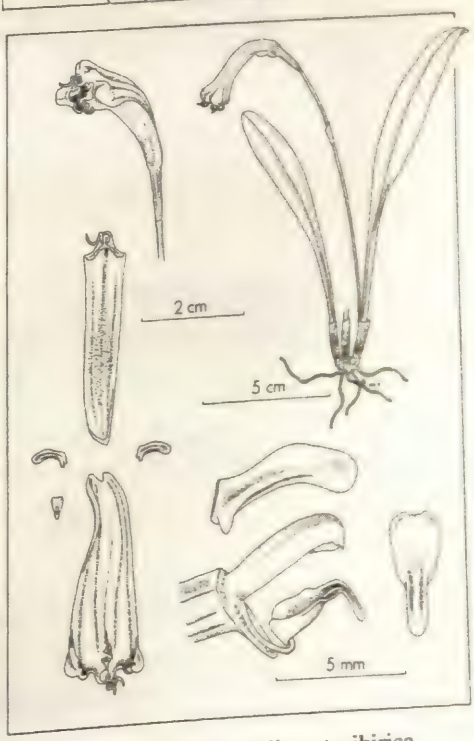


Plate 521. Masdevallia notosibirica

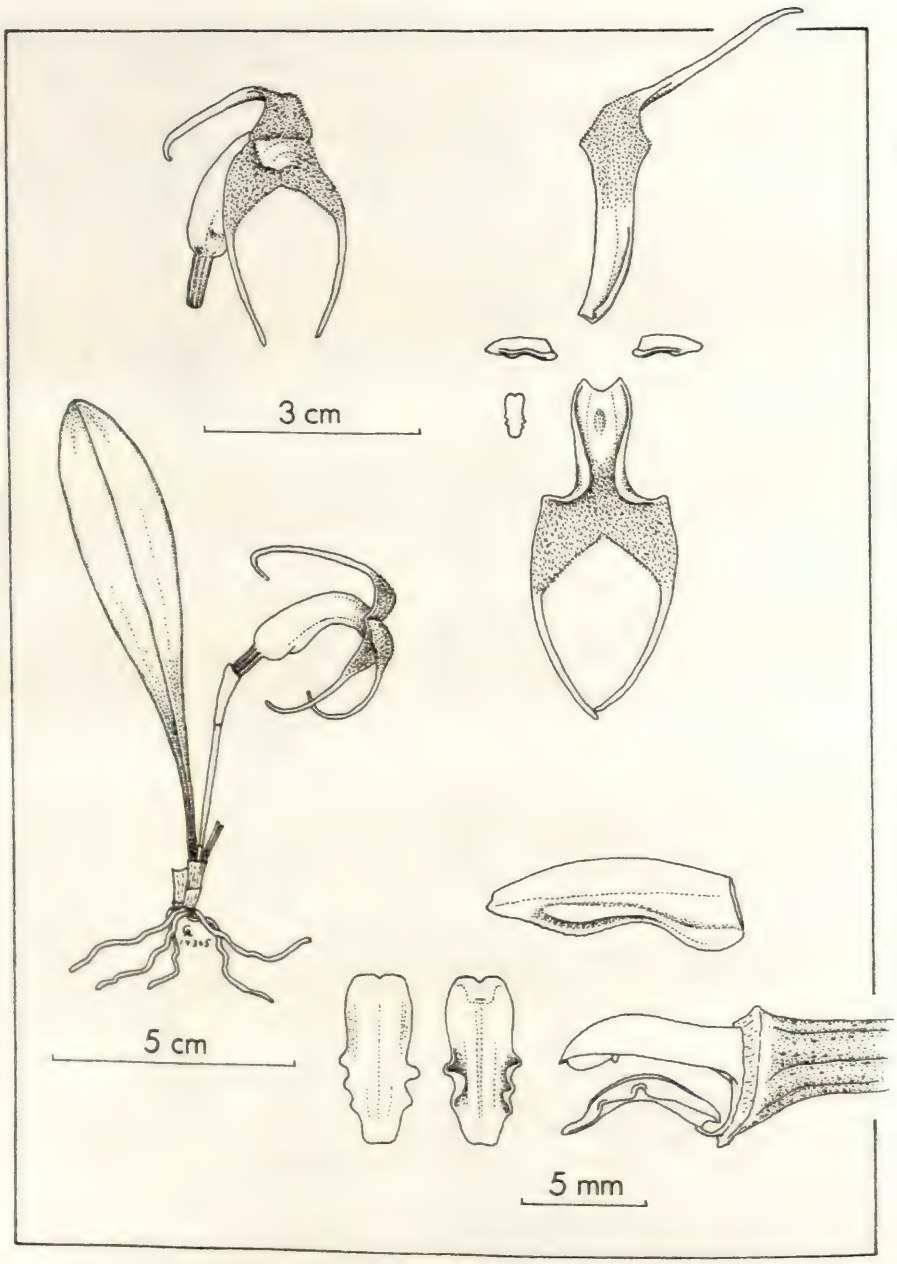


Plate 525. Masdevallia rex

Masdevallia os-draconis Luer & Escobar, Orquideología 13: 92, 1978.

Ety.: From the Latin *os-draconis*, "mouth of a dragon," in fancied allusion to the appearance of the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 3-6.5 cm long including the petiole 1-2 cm long, the blade narrowly obovate, subacute to obtuse, 0.9-1.1 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower borne by a slender, suberect peduncle 4-4.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8 mm long; pedicel 10 mm long; ovary 3 mm long, the ribs minutely undulate; **sepals** purplish, yellowish toward the base, glabrous externally, with tufts of short, red pubescence within, the dorsal sepal oblong-obovate, 18 mm long, 4-6 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical, sepaline tube, slightly constricted before the orifice, the free portion ovate, subacute, with lightly revolute margins, contracted into a slender, recurved, maroon tail 13-14 mm long, the lateral sepals 20 mm long, connate 10 mm, 5 mm wide together, forming a shallow mentum below the middle, the free portions subfalcate, 10 mm long, 3.5 mm wide, with lightly revolute margins, the apices acute, contracted into 15 mm long tails similar to that of the dorsal sepal; **petals** yellow, oblong, subacute, 6 mm long, 2 mm wide, with a longitudinal callus along the labellar margin terminating in an obtuse angle above the base; **lip** yellow, minutely flecked with purple, oblong, 6 mm long, 2 mm wide, the disc smooth, longitudinally shallowly sulcate between a pair of low, oblique calli near the middle, the apex bright yellow, rounded, the base subcordate, hinged beneath; **column** greenish white, flecked with purple, semiterete, 4.5 mm long, the foot 2 mm long including a short, incurved extension.

COLOMBIA: **Risaralda**: Pueblo Rico, "Ciatocito," alt. 2000-2200 m, collected by J.M. Serna, Feb. 1974, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 1766* (Holotype: JAUM); same collection, cultivated, 5 Oct. 1977, *C. Luer 1918* (SEL); same locality, Apr. 1975, *J.M. Serna s.n.* (JAUM). **Antioquia**: Abriaquí, alt. 1800 m, collected by G. Misas, Mar. 1985, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13057* (MO).

Masdevallia os-draconis, a fierce-looking little species, is rare and local in the Western Cordillera of Colombia, having been first collected by the late, veteran collector J.M. Serna. The sepals are connate half their length into a horizontal, slender, sepaline tube that is slightly constricted above the middle and shallowly ventricose below the middle. Differing from the other members of the subsection, the free portions of the lateral sepals are narrow, acute and about as long as the tube before contracting into slender tails. The petals are simple with a marginal callus, and the lip is oblong with a pair of low calli near the middle.

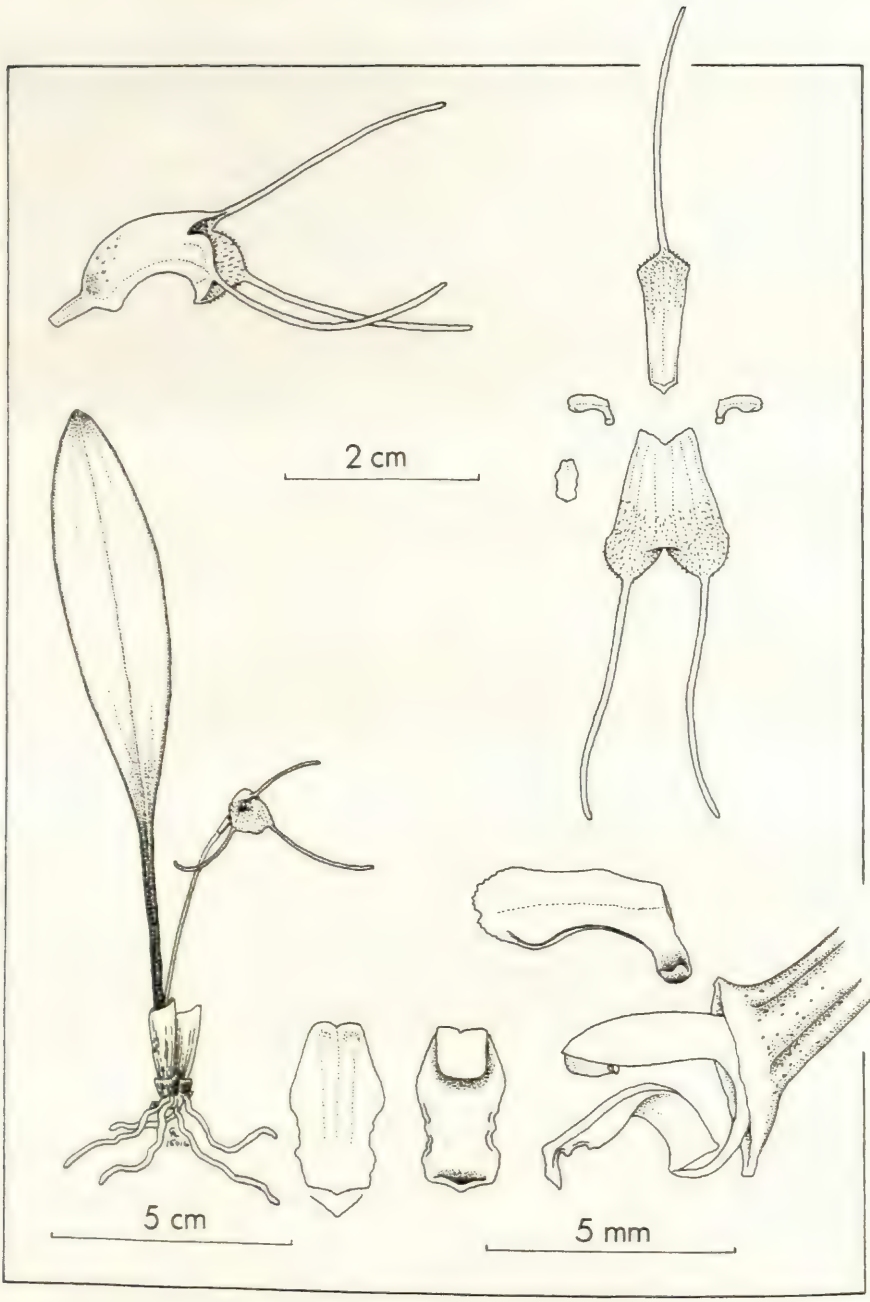


Plate 526. Masdevallia ricii

Masdevallia rex Luer & Hirtz, Lindleyana 4: 122, 1989.

Ety.: From the Latin *rex*, "a king," in allusion to the regal status of the large, golden flower with a purplish hue of the pubescent sepals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, blackish, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-10 cm long including the petiole 1-2 cm long, the blade elliptical-obovate, obtuse, 1.5-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a large, solitary flower borne by a stout, erect peduncle 3-3.5 cm long, with a bract above the base, from the base of a ramicaul; floral bract tubular, 10-11 mm long; pedicel 10 mm long; ovary 8 mm long; **sepals** fleshy, light orange or apricot, densely short-pubescent within above the middle, some of the hairs purple, the dorsal sepal oblong, curved, concave, 33-40 mm long, 11-14 mm wide expanded at the orifice of the tube, connate to the lateral sepals for 27-35 mm to form a more or less subhorizontal, cylindrical, sepaline tube, lightly constricted above the middle, the apex obtuse, narrowed into a broad, thick, reflexed, orange tail 30 mm long, the lateral sepals 33-40 mm long, connate 22-40 mm into the cylindrical tube, lightly ventricose in the lower third, the free portions broadly triangular, subacute, oblique, 9-13 mm wide, the apices contracted into reflexed tails 20-30 mm long; **petals** yellow, cartilaginous, oblong, 10.5 mm long, 3 mm wide, the apex narrowly obtuse, the labellar half with a longitudinal carina ending in a thick callus at the base; **lip** yellow, oblong, 7.5 mm long, 3-4 mm wide, with the margins above the middle dilated into broad, purple lobes, then on the distal quarter dilated into smaller, erect, rounded lobes before the subtruncate apex, the disc convex, lightly channeled, essentially featureless, the base subcordate, hinged beneath; **column** white, suffused with purple, semiterete, 7.5 mm long, the foot 2.5 mm long including the incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, epiphytic in wet forest along the new road between Mendez and Morona, alt. 950 m, 18 Jan. 1989, cultivated by P. & A. Jesup in Bristol, CT, June 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz, S. Ortega & A. Andreetta 14385* (Holotype: MO), same area, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4220* (MO), C. Luer illustr. 14365; Cordillera del Condor, Río Santiago, alt. 600 m, collected by A. Hirtz & A. Andreetta, Jan. 1989, cultivated at Paute, 22 Mar. 1991, *C. Luer 15222* (MO).

This species from a low altitude in the Cordillera del Cutucú in eastern Ecuador is one of the largest of the species of subsection *Saltatrices*. The long, fleshy, sepaline tube is light yellow to apricot without a large ventricosity; it is densely short-pubescent internally with many of the hairs purple, and with broad, thick, reflexed tails. At the base of the deep tube the proportionately large petals flank the column. The margins of the oblong lip are dilated into a broad pair of purple lobes above the middle and below a slight constriction that creates a rounded apex.

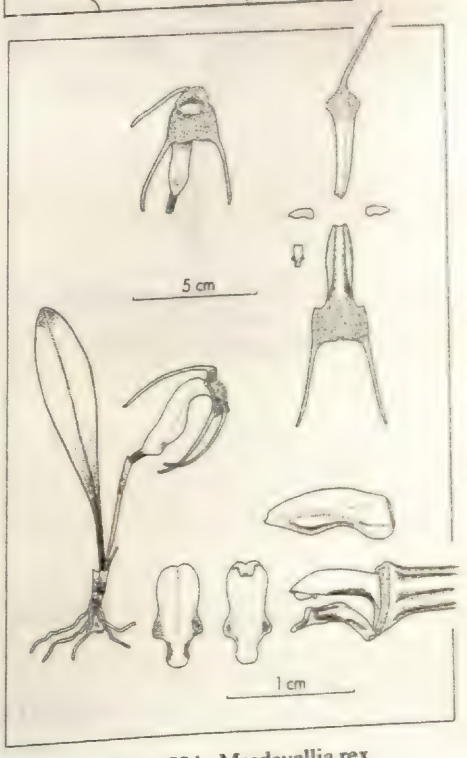


Plate 524. Masdevallia rex

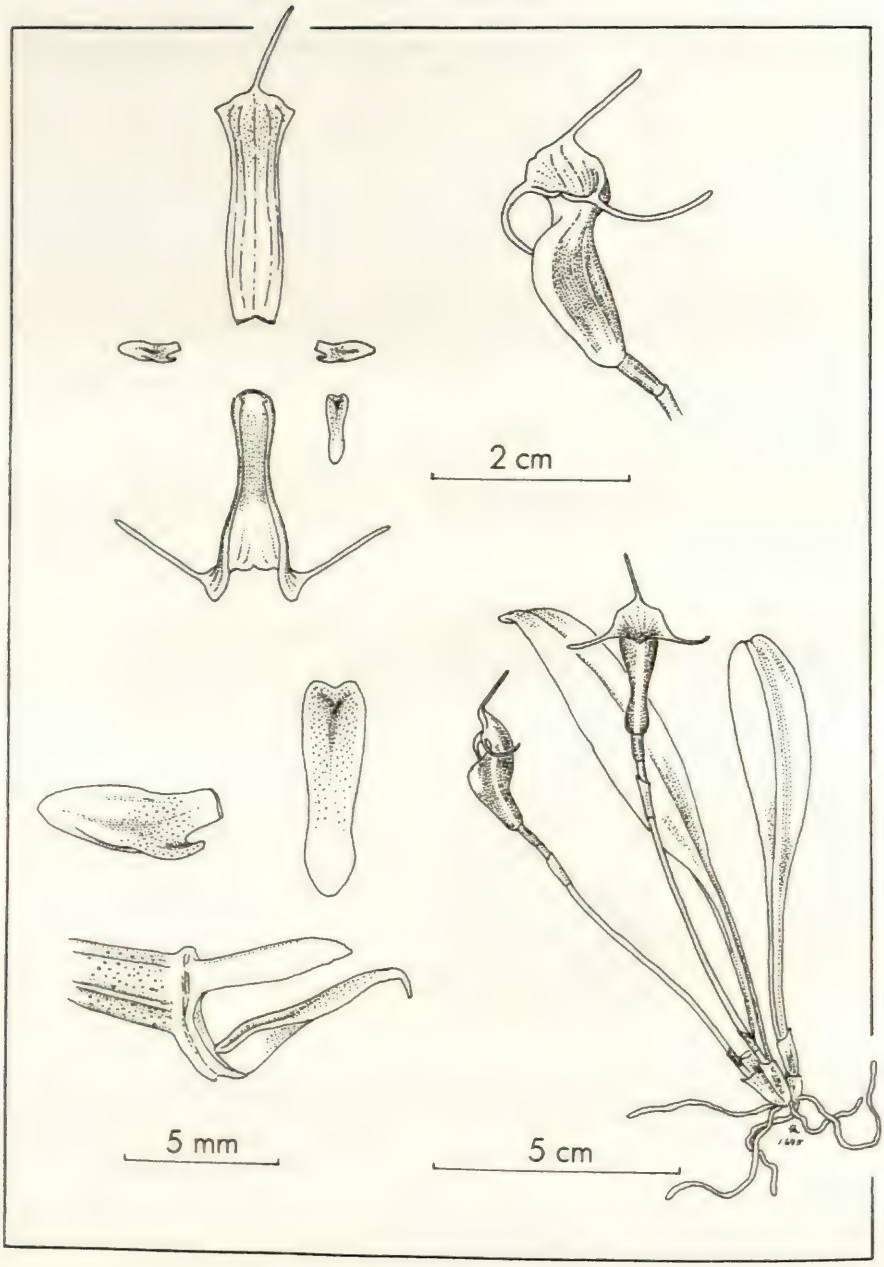


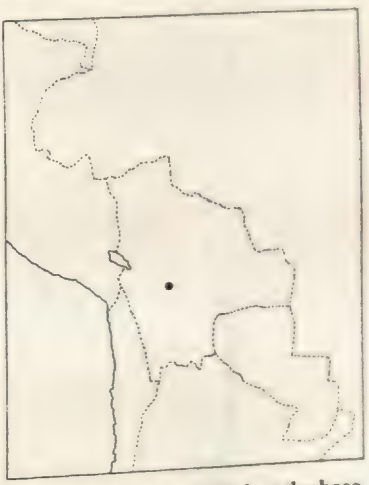
Plate 527. Masdevallia saltatrix

Masdevallia ricii Luer & Vásquez, Rev. Soc. Bol. Bot. 2: 14, 1997.

Ety.: Named in honor of Darwin Ric of Montero, Bolivia, co-discoverer of this species.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls blackish, slender, erect, 1.5-3 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-12 cm long including the petiole 1.5-3 cm long, the blade narrowly elliptical, subacute, 1.2-2.2 cm wide, the base narrowly cuneate into the blackish petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 1.5-4 cm long, with a bract above the base, from low on the ramicaul; floral bract 7-8 mm long; pedicels 5-10 mm long; ovary 5 mm long; **sepals** yellowish white, suffused with orange and with a few small, pale red spots toward the base, glabrous externally, pubescent within above the middle, the trichomes simple or caespitose, the dorsal sepal narrowly obovate, concave, 14-15 mm long, 5 mm wide expanded, connate to the lateral sepals for 13-14 mm to form an arcuate, sepaline tube, the apex broadly obtuse, abruptly contracted into a forwardly directed, slender, olive-colored tail 25-27 mm long, the lateral sepals 15 mm long, connate 10 mm into a bifid, more or less obovate lamina, the free portions 6 mm wide, obtuse, contracted into tails similar to that of the dorsal sepal; **petals** light yellow-orange, oblong-obovate, 4.5 mm long, 1.5 mm wide, the apex rounded, minutely erose, lightly notched, with a longitudinal carina along the labellar margin terminating at the base in a broad, thick, descending process with the tip incurved; **lip** yellow-orange, oblong, arcuate, 4 mm long, 1.75 mm wide, the sides undulate and decurved, the apex obtuse and decurved, the disc shallowly channeled, the base thick and deep, presenting a flat, subquadrate surface on the end, hinged beneath; **column** yellow-orange, stout, semiterete, 3 mm long, with a foot equally long including a slender extension 1.5 mm long.

BOLIVIA: **Santa Cruz**: epiphytic in moist forest above Mairana, La Yunga, alt. 2090 m, 8 Sept. 1991, *C. Luer, J. Luer, R. Vásquez & D. Ric 15416* (Holotype: MO; Isotype: LPB).



This species occurs in cool moist forests of central Bolivia where it grows with *M. heideri*, but much less abundantly. Unfortunately, these forests are currently in the process of being cut and burned.

Masdevallia ricii is distinguished by the yellowish white, long, arcuate, nonventricose, sepaline tube, suffused with orange and lightly dotted with red toward the base. The free portions of the sepals are rounded and contracted into slender, forwardly pointing tails. The petals are distinguished by a long, thick, basal process. The lip is arcuate and thick at the base with a broad, flat surface on the end.

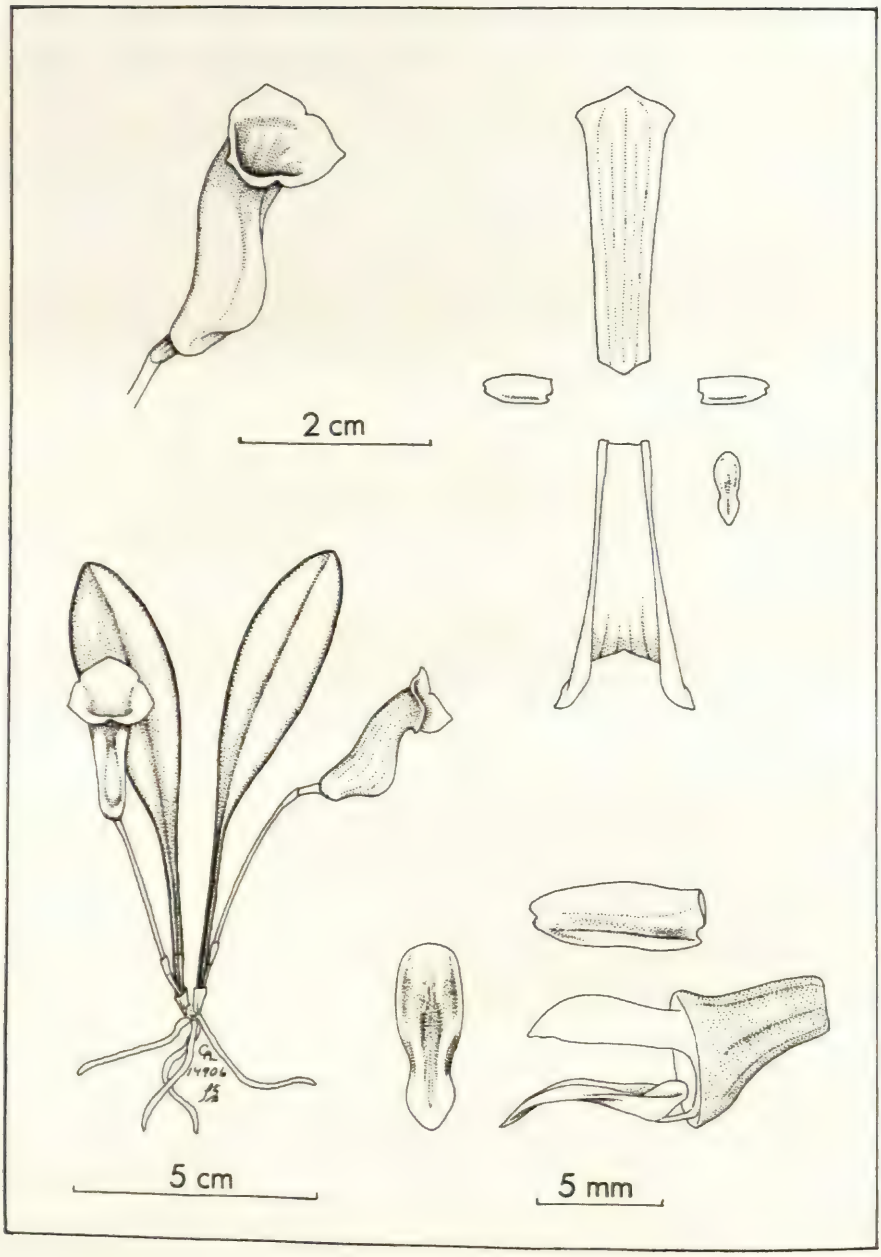


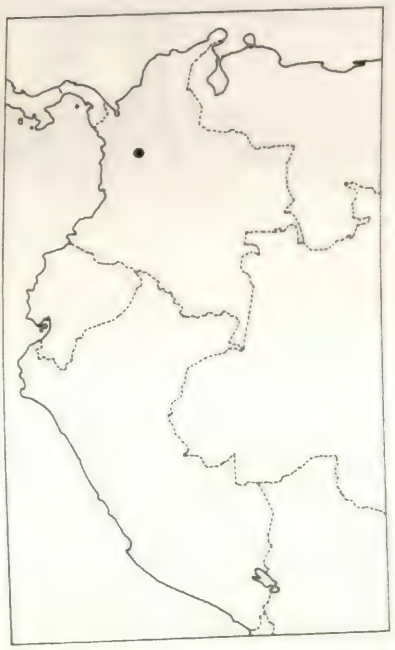
Plate 528. Masdevallia siphonantha

Masdevallia saltatrix Rchb.f., Linnaea 41: 10, 1877.

Ety.: From the Latin *saltatrix*, "a woman dancer," in allusion to the graceful flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-11 cm long including the petiole 1-4 cm long, the blade elliptical, obtuse, 1.2-2.3 cm wide, cuneate below into the slender petiole. **Inflorescence** a solitary flower borne by a slender, erect to suberect peduncle 2-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 7-8 mm long; pedicel 12-13 mm long; ovary 6 mm long; **sepals** glossy red-purple externally, yellow, dotted with red and cellular-pubescent within, the dorsal sepal oblong, 27 mm long, 10 mm wide, connate to the lateral sepals for 23 mm to form an erect, curved, ventricose, cylindrical tube constricted below the ostium, the free portion transversely triangular, the obtuse apex contracted into a slender, recurved tail 17-25 mm long, with an orange, clavate apex, the lateral sepals 25 mm long, connate 20 mm into an oblong, deeply ventricose synsepal, 18 mm wide expanded, the free portions obtuse, contracted into reflexed tails similar to that of the dorsal sepal; **petals** white, elliptical-oblong, 6 mm long, 2.5 mm wide, the subacute apex obscurely bilobed, the lower margin with a longitudinal callus ending in an obtuse angle above the base; **lip** bright yellow, flecked with purple below the middle, oblong-ligulate, 6 mm long, 2.25 mm wide, the apex subacute, the disc with a pair of low, parallel calli, the base truncate, hinged on the end; **column** white, semiterete, 5.5 mm long, the foot stout, 2 mm long with a short, incurved extension.

COLOMBIA: **Antioquia**: Frontino, *Roezl s.n.* (Holotype: W); Cerro de Frontino, alt. 2000 m, 25 Oct. 1884, *F. C. Lehmann 4137* (G, K); El Plateado, collected by R. Escobar et al., 11 Apr. 1974, cultivated by M. & O. Robledo, 4 Oct. 1977, *C. Luer 1902* (SEL); same area, alt. 1820 m, 3 May 1983, *C. Luer, J. Luer, R. Escobar, A. Pridgeon & E. Valencia 9051* (SEL).



This species is endemic in the region around Frontino in the Western Cordillera of Colombia, where it was first collected by Roezl. Lehmann also found it there when he visited the silver mines at El Plateado. He entitled his painting of this species, now at Kew, *Masdevallia ventricularia* var. *frontinoënsis*.

Closely allied to the smaller, short-tailed, Ecuadorian *M. ventricularia*, and even more closely allied to the slender-tailed *M. filaria* that is also found in the Western Cordillera, this taxon is easily recognized. The larger, erect, dark red, glossy, big-bellied sepaline tube, yellow and spotted inside, and the three reflexed, slightly clavate tails easily identify it. The petals are oblong with a marginal callus, and the simple lip is oblong and obtuse.

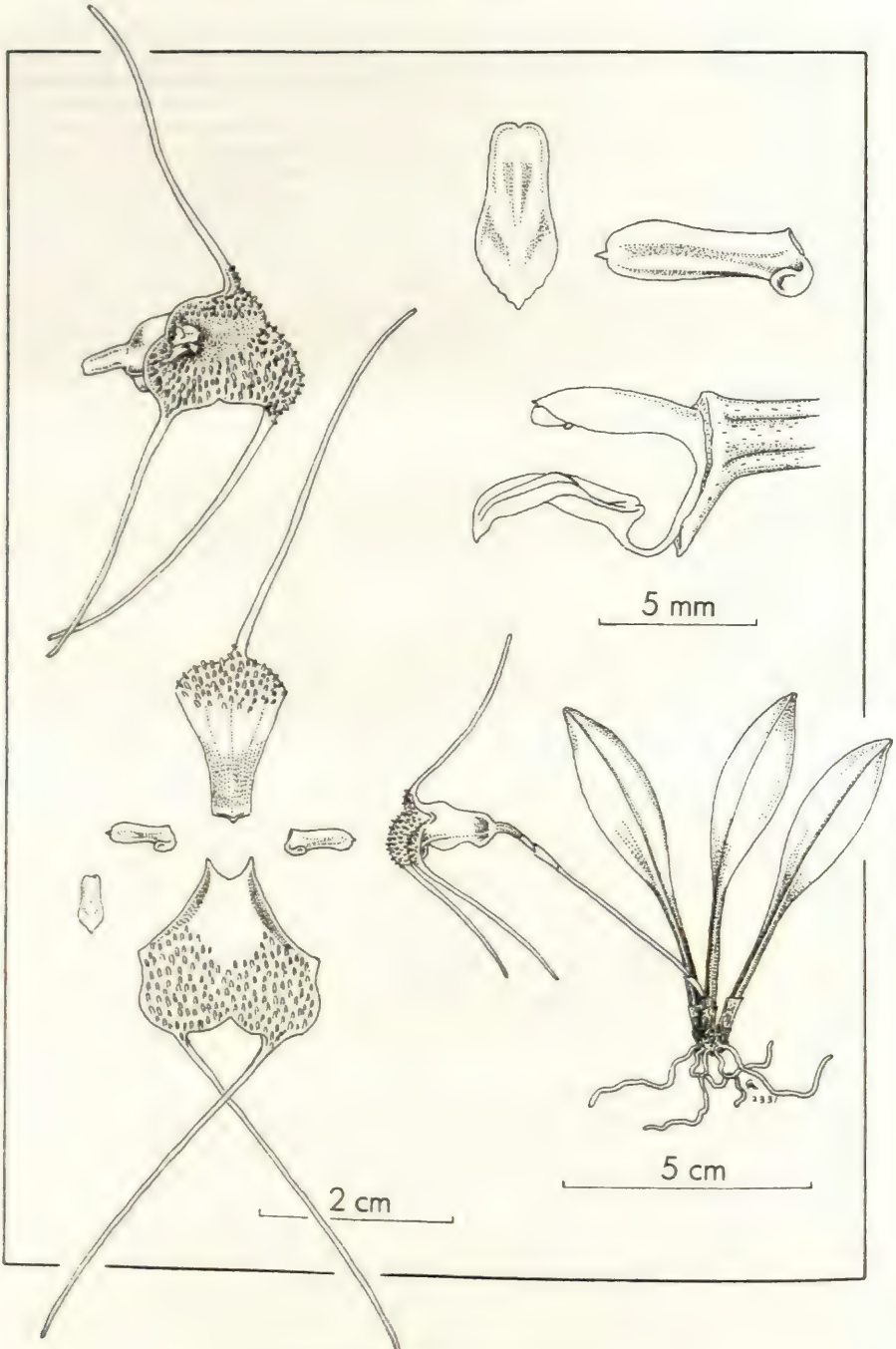


Plate 529. Masdevallia strobelii

Masdevallia siphonantha Luer, sp. nov.

Ety.: From the Greek *siphonantha*, "tube-flower," referring to the cylindrical flower.

Species haec *M. anguliferae* Rchb.f. affinis, sed sepalorum tubo majore, sepalis porportionale profundiore connatis, et apicibus transverse obtusis differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-8 cm long including a petiole 2-3 cm long, the blade narrowly elliptical, subacute to obtuse, 1.5-2 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a solitary, suberect, tubular, ventricose flower borne by an erect to suberect, slender peduncle 4-5 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 12 mm long; ovary 5 mm long; **sepals** green, striped or suffused with purple, microscopically short-pubescent, the dorsal sepal oblong, 29 mm long, 7 mm wide expanded, connate to the lateral sepals for 27 mm to form a lightly sigmoid, sepaline tube, only slightly constricted above the middle, the apex transversely obtuse, the lateral sepals 27 mm long, connate 23 into a longitudinally concave synsepal, 9-14 mm wide expanded, the free apical portions transversely obtuse, similar to that of the dorsal sepal; **petals** light yellow-green, oblong, 7 mm long, 2.75 mm wide, the obtuse apex obscurely bilobed, the labellar margin with a longitudinal callus ending in a short, obtuse tooth above the base; **lip** yellow, dotted with red, oblong-ligulate, 7.5 mm long, 2.75 mm wide, the lateral margins lightly revolute above the middle, the apex obtuse, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long, with an incurved extension.

COLOMBIA: **Antioquia**: between Yarumal and El Cedro, alt. 2000 m, collected by W. Teague, 15 Mar. 1989, flowered in cultivation in San Francisco, CA, Nov. 1990, *C. Luer 14906* (Holotype: W). **Risaralda**: Pueblo Rico, collected by E. Velez, cultivated at Orquifollajes, 9 July 1996, *C. Luer 17981* (MO).

This uncommon, Colombian species is similar to *M. angulifera*, and it had been considered a variation. Its status was reconsidered when material for this volume was being assembled.

It differs from *M. angulifera*, the only other tailless member of the subsection, in the broader, less constricted sepaline tube with the sepals more deeply connate, nearly the full length of the dorsal sepal. The free, apical portions are transversely obtuse and proportionately much shorter when compared to the longer, ovate, subacute, reflexed apices of *M. angulifera*.

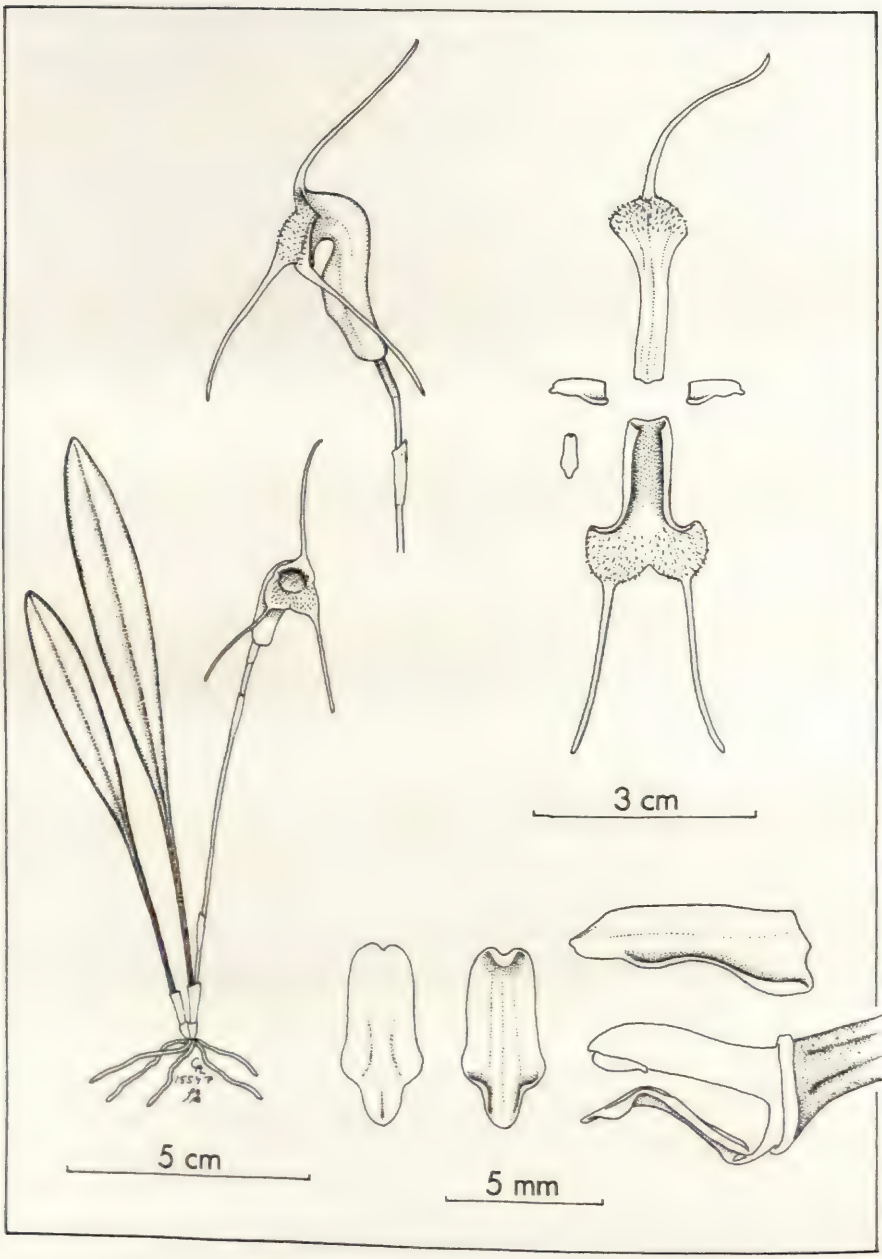


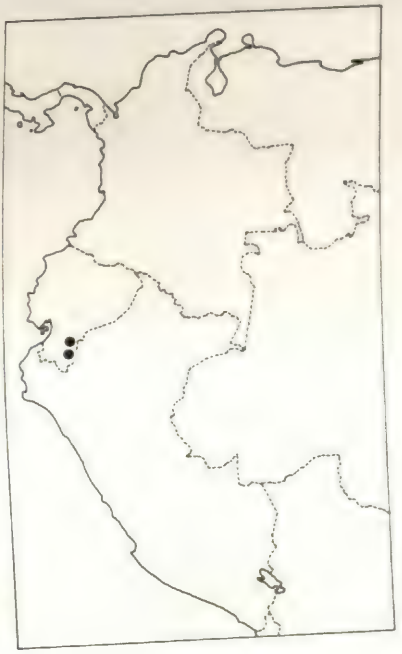
Plate 530. Masdevallia tubata

Masdevallia strobelii Sweet & Garay, Amer. Orchid Soc. Bull. 35: 377, 1966.

Ety.: Named in honor of José Strobel of Cuenca who exported this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 4-6 cm long including the petiole 1-2 cm long, the blade elliptical, acute, 1.4-1.7 cm wide, the base cuneate into the slender petiole. **Inflorescence** a solitary, showy flower borne by a slender, suberect to horizontal peduncle 3-4.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 6-7 mm long; pedicel 9-10 mm long; ovary 5-6 mm long; **sepals** white, intensely suffused with bright orange below the middle, densely glandular pubescent within above the middle, the blade of the dorsal sepal obovate, 16 mm long, 11 mm wide, connate to the lateral sepals for 14 mm into a cylindrical tube, the free portion transversely ovate, the broadly obtuse apex abruptly contracted into an erect, slender, yellow-orange tail 3-4 cm long, the lateral sepals connate for 14 mm into a broadly obovate, ventricose lamina 18 mm long, 20 mm wide expanded, the rounded apices contracted into tails similar to that of the dorsal sepal; **petals** yellow-orange, oblong, 7 mm long, 2 mm wide, the obtuse apex apiculate, with a longitudinal callus along the labellar half terminating in a thick, rounded, retrorse appendage that curves forward, the external sides of the appendages of both petals in apposition below the column; **lip** white, obovate, lightly arcuate, 6 mm long, 2.75 mm wide, the subacute apex yellow with minutely undulate margins, the disc with a pair of low, smooth, longitudinal calli, the subcordate base hinged beneath; **column** yellow-white, semiterete, 5 mm long, the foot equally long including the incurved extension.

ECUADOR: **Zamora-Chinchipe**: "on fence posts and in tree tops in open sun," between Loja and Zamora, alt. 1400 m, 17 April 1958, *C.H. Dodson & G. Frymire 173* (Holotype: AMES); same area, collected by Walter Teague, June 1974, cultivated 26 Jan. 1978, *C. Luer 2331* (SEL); Valle de Zamora, Río Dos Hermanos, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13634* (MO); Sabanilla, west of Zamora, alt. 1550 m, 5 Mar. 1990, *S. Dalström & L. Årnby 1471* (MO).



This floriferous species, first discovered by Dodson and Frymire, is endemic in one valley in southeastern Ecuador. A later collection by Strobel was sent to Garay for identification. Once abundant, it has now become difficult to find in its native habitat. It is popular in many orchid collections. The bright orange and white, more or less horizontal, ventricose, sepaline tubes are pubescent within with capitate hairs. The basal tooth of the petal is so prolonged and incurved that it meets the tooth from the opposite petal beneath the column and above the base of the lip.

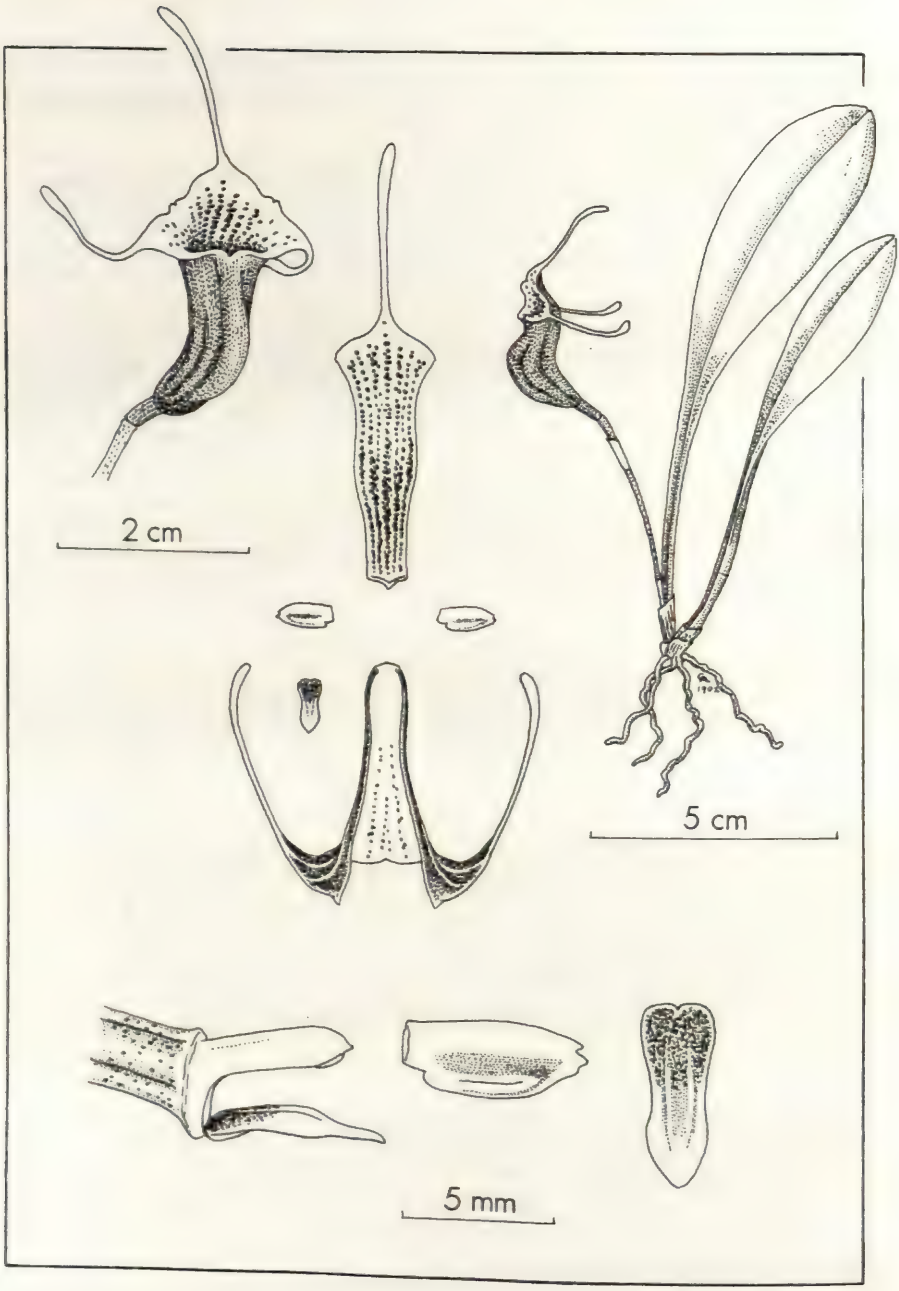


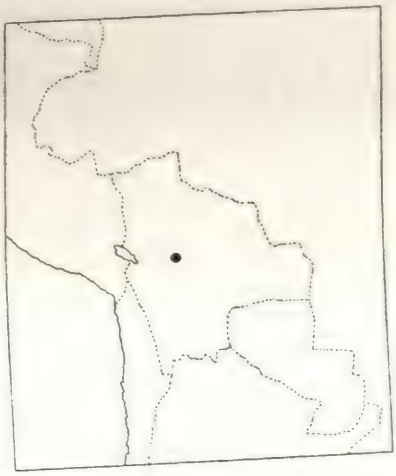
Plate 531. Masdevallia ventricularia

Masdevallia tubata Schltr., Repert. Spec. Nov. Regni Veg. 27: 39, 1924.

Ety.: From the Latin *tubatus*, "with a tube," referring to the sepaline tube.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 1.5-3 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 6-11 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, acute to subacute, 1-1.3 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 4-6 cm long, with a bract above the base, from low on the ramicaul; floral bract 8 mm long; pedicel 10-15 mm long; ovary green, 7 mm long; **sepals** white, suffused with light yellow below the middle and lightly veined with orange on the lower 3 quarters, pubescent within above the middle, glabrous externally, the dorsal sepal narrowly obovate, concave, 25 mm long, 10 mm wide expanded at the orifice of the tube, the apex broadly rounded, abruptly contracted into an erect, slender, yellow tail 25 mm long, connate to the lateral sepals for 20 mm to form an erect tube that is constricted in the distal quarter, below an abrupt bending of the tube 90°, the lateral sepals 22 mm long, connate 20 mm into an expanded, subquadrate lamina beyond the tube, 15 mm wide, the rounded apices contracted into descending tails similar to that of the dorsal sepal; **petals** yellowish white, oblong, 7.5 mm long, 2 mm wide, 3 mm wide above the base, the apex obtuse, with the upper margin slightly inflexed, with a longitudinal carina along the labellar margin terminating at the base in a thick, obtuse angle; **lip** white, obovate, 6 mm long, 2-2.4 mm wide, the sides slightly dilated above the middle and slightly reflexed in the distal third to the narrowly obtuse apex, the disc essentially featureless or very shallowly sulcate centrally, the base subtruncate, hinged beneath; **column** semiterete, white with thin, purple margins, 6 mm long, the foot 1 mm long, with a slender, incurved extension.

BOLIVIA: **La Paz**: Larecaja, Hacienda Sumaco, above the trail to Tipuani, alt. 1400 m, Jan. 1920, *O. Buchtien 5021* (holotype of *M. tubata* destroyed at B, Lectotype: US); Nor Yungas, epiphytic in forest between Chuspipata and Yolasa, alt. ca. 1800 m, collected Nov. 1992, cultivated in Quito, Ecuador, by *A. Hirtz s.n.* (MO), C. Luer illustr. 15547.



This species is closely allied to *M. constricta* of the Andes of Ecuador and Peru. Still a rare plant first collected by Buchtien in a remote, inaccessible valley of the Nor Yungas of Bolivia, it was recently rediscovered in a more accessible, nearby area.

Masdevallia tubata is similar to *M. constricta*, but varies from the latter by the smaller size and a narrower tube that is acutely bent forward beyond the constriction before the free parts expand. The size and shape of the petals, lip, and column of the two species are similar.

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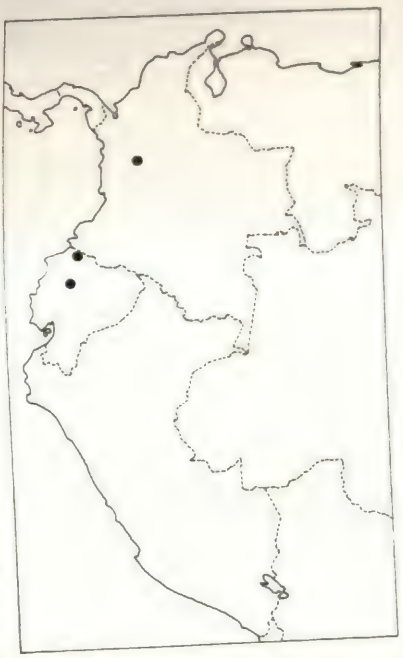
Masdevallia ventricularia Rchb.f., Otia Bot. Hamburgensia 1: 14, 1878.

Ety.: From the Latin *ventriculus*, "a little belly," referring to the anterior bulging of the sepaline tube.

Syn.: *Masdevallia ventricularia* var. *brevicaudata* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 19, 1925.

Ety.: From the Latin *brevicaudatus*, "short-tailed," referring to the short sepaline tails as compared to the extremely long tails of specimens from Colombia.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-9 cm long including the 2.5-3.5 cm long petiole, the blade narrowly elliptical-ovate, obtuse, 1.4-1.8 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary, erect, tubular flower borne by a slender erect to suberect peduncle 3.5-6.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 7-8 mm long; pedicel 11-14 mm long, ovary 5-6 mm long, yellow, speckled with purple; **sepals** red-purple or purple-brown, shortly to cellular-pubescent within above the middle, the dorsal sepal oblong, 20-24 mm long, 7-8 mm wide expanded, connate to the lateral sepals for 19-23 mm to create a cylindrical, ventricose, sepaline tube, constricted above the middle, the free portion triangular to transversely triangular, the obtuse apex abruptly contracted into a slender, orange tail 4-9 mm long, the lateral sepals 18-23 mm long, connate 16-20 mm into a lamina concave longitudinally, 6 mm deep, 3-4 mm wide unexpanded, the free portions triangular, acute, reflexed, contracted into tails 5-9 mm long; **petals** cream-colored, dotted and suffused with red, oblong, obtuse, 6 mm long, 2 mm wide, the labellar margin with a longitudinal callus ending in an acute, retrorse tooth above the base; **lip** red, dotted and suffused with red, oblong-ligulate, 7 mm long, 2 mm wide, the apex yellow, obtuse, the disc lightly sulcate, the base with lightly upcurved margins, subcordate, hinged on the end; **column** white, semiterete, 5 mm long, the foot 3 mm long with a short, incurved extension.



ECUADOR: **Pichincha**: Angue near Nanegal, alt. 6,000-7,000 ft, Feb., Mar., Sept. 1877, *F.C. Lehmann 23* (Holotype: W, and holotype of var. *brevicaudata*: W); "W. Andes, on trees," 1857, *Jameson s.n.* (K, P); between Calacalí and Nanegal, alt. 1800-2000 m, 28 Nov. 1880 and 28 Feb. 1883, t. 274, *F.C. Lehmann 321* (BM, BR, G, K, US); same area, Dec. 1975, collected by B. Malo, cultivated at Tarqui, 13 July 1977, *C. Luer 1695* (SEL); west slope of Pichincha, alt. 2000 m, collected by A. Andreetta and A. Hirtz, cultivated at Paute, 24 May 1988, *C. Luer 13661* (MO). **Carchi**: east of pass east of Maldonado, alt. 2300 m, 17 Mar. 1991, *C. Luer, J. Luer, J. Del Hierro, A. & X. Hirtz 15138* (MO); same area, alt. 2200 m, 25 Feb. 1992, *S. Dalström 1572* (MO). COLOMBIA: **Antioquia**: Yarumal, near Estadero Ventanas, alt. 2000 m, 16 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14209* (MO).

Masdevallia ventricularia, first discovered by Dr. Jameson of Quito, occurs in the forests of northwestern Ecuador and Colombia where it is relatively frequent. It is characterized by a small, solitary, erect, reddish brown, tubular flower, ventricose near or below the middle and constricted between the ventricosity and the orifice of the tube. The free parts of the sepals are broadly triangular, each terminated by a tail considerably shorter than than the sepaline tube.

Masdevallia ventricularia is closely related to the Colombian *M. filaria* and *M. saltatrix*, which are readily distinguished by their larger size, colorful sepaline tube, and slender, recurved, sepaline tails as long as or longer than the sepaline tube.

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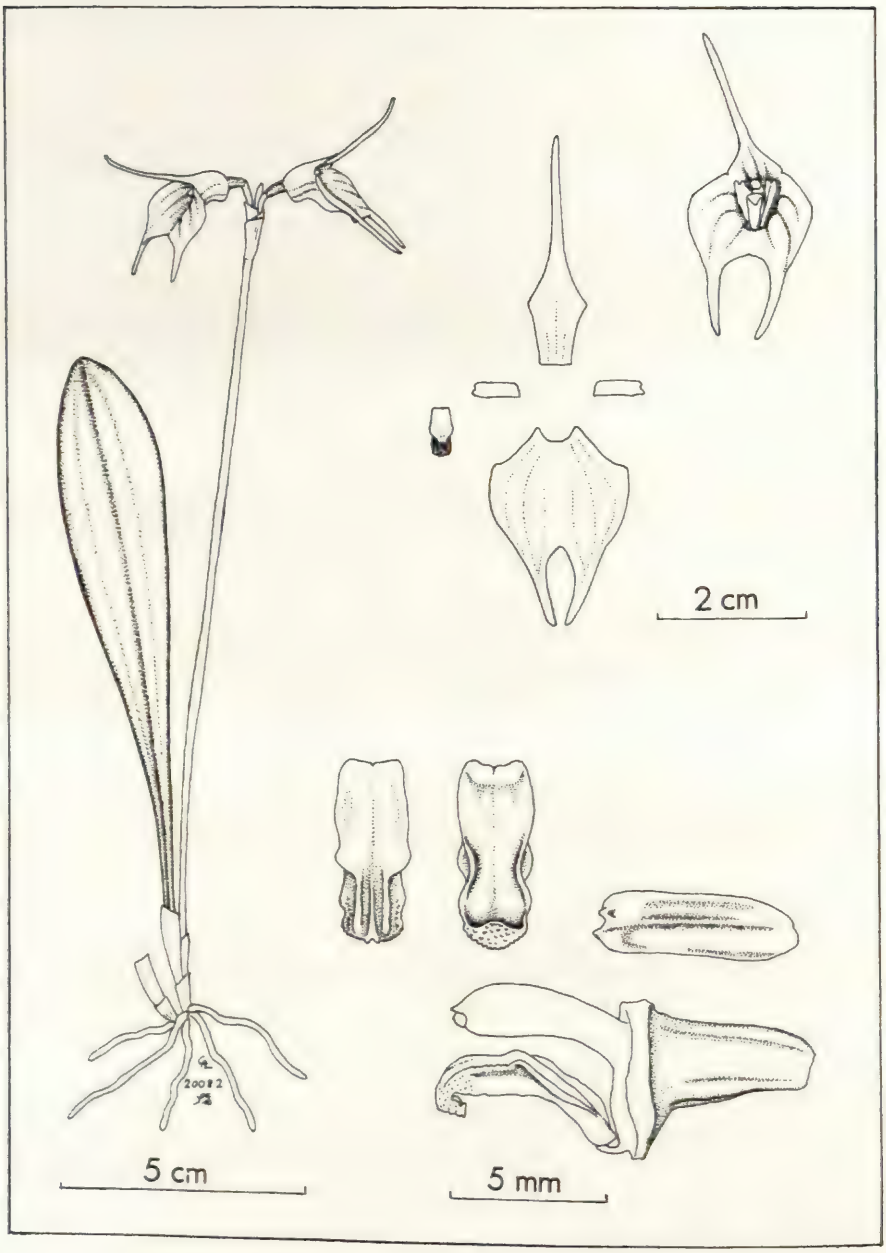

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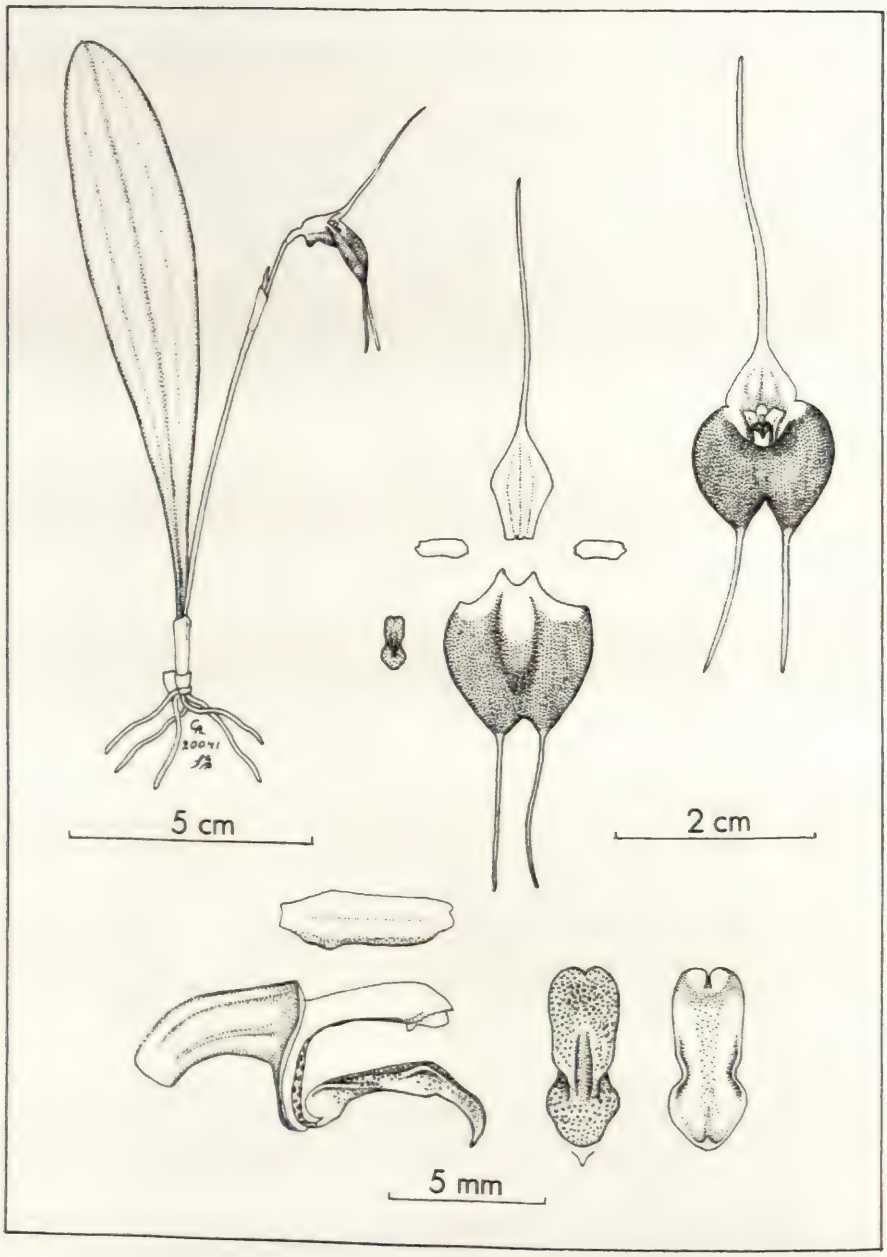


Plate 533. Masdevallia zumbuehleriae

Masdevallia barrowii Luer, sp. nov.

Ety.: Named for Roy Barrow of Great Missenden, Buckinghamshire, England, who cultivates this species.

Species haec *M. bicolore* Poepp. & Endl. affinis, sed floribus rubiginosis supra folios portatis, sepalis lateralibus expansis marginibus leviter recurvis differt.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 9-12 cm long including an indistinct petiole 1-1.5 cm long, the blade elliptical-obovate, subacute to obtuse, 2-2.2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a congested, few-flowered raceme, usually with 2 flowers open simultaneously, borne by a stout, erect, sharply triquetrous peduncle 11-15 cm long, with a basal bract, from the base of a ramicaul; floral bracts tubular, imbricating, 8-9 mm long; pedicel 10-12 mm long; ovary 5 mm long; **sepals** rosy red-brown, glabrous externally with the midveins prominent, cellular-glandular within, the dorsal sepal 30 mm long including a tail ca. 17 mm long, 8 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical tube, the free portion triangular, acute, triangular, contracted into the stout, forwardly directed tail, the lateral sepals connate 14 mm into an ovate, bifid lamina ca. 18 mm long, 19 mm wide, with a broad, shallow mentum, the apices acute, contracted into tails ca. 7 mm long; **petals** yellowish, oblong, 6 mm long, 2 mm wide, both halves with low longitudinal calli, the apex subtruncate, retuse between a pair of obtuse, thickened angles; **lip** red-purple, oblong, 6 mm long unexpanded, 7 mm long expanded, 2.5 mm wide, the margins with rounded folds near the middle, the apex rounded, recurved, with 3 thickened veins, minutely verrucose, minutely apiculate, the hypochile oblong, flat, subtruncate at the base, hinged beneath; **column** purple, semiterete, 5 mm long, the foot thick, 3 mm long with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, Chinapintza, alt. 1500 m, collected by I. Acaro, cultivated at Royden Orchids, Great Missenden, Buckinghamshire, England, Jan. 2002, *R. Barrow RO16* (Holotype: MO), C. Luer illustr. 20082; cultivated at Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8058* (MO).

This Ecuadorian species is related to the widely distributed, frequent and variable *M. bicolor*, but in flower it appears distinctly different. Two simultaneous, rosy red-brown flowers with rosy red-brown tails are held above the leaves by a strict, triquestrous peduncle. Beyond the tube, the synsepal is expanded with slightly recurving sides, not concave as seen in *M. bicolor*. The tail of the dorsal sepal is at least as long as the blade, and the tails of the lateral sepals are distinctly shorter than the blades. Within the sepaline tube, the petals, lip and column are similar to those of the variable *M. bicolor*. In this particular clone, the apices of the petals are retuse between a pair of thickened angles, but the apices of most allied species are variable. The apex of the lip is recurved, but the lip of allied species is also variable.

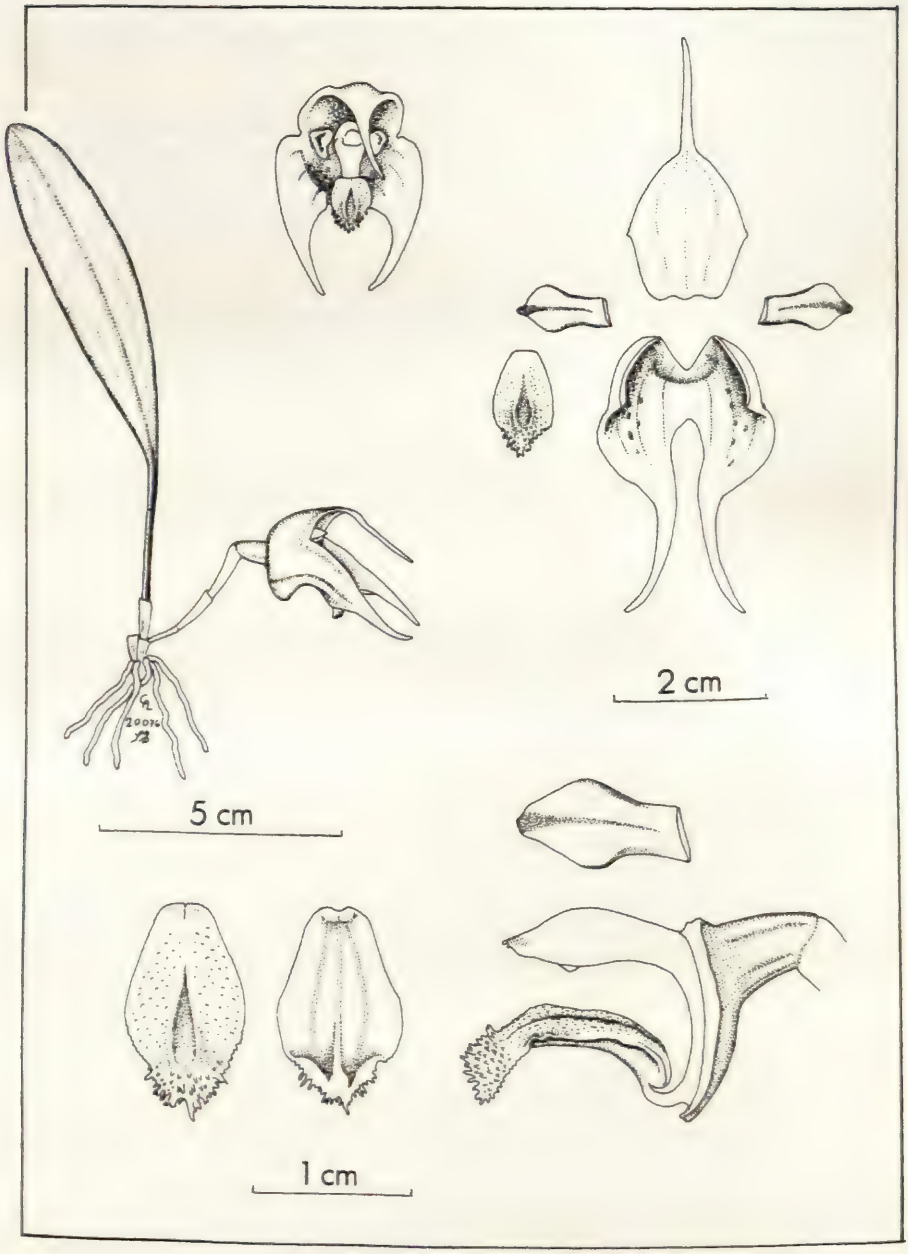


Plate 534. Masdevallia lappifera

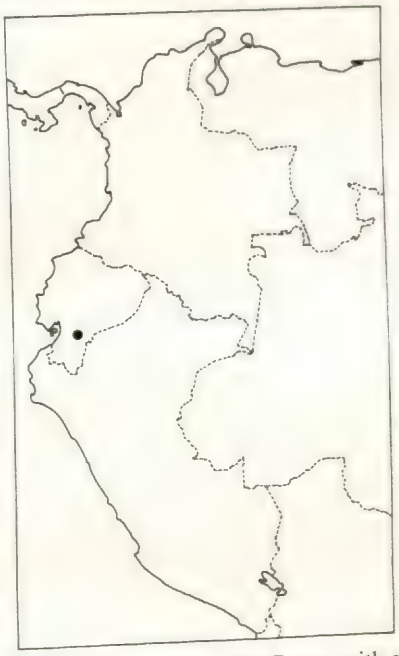
Masdevallia zumbuehlerae Luer, sp. nov.

Ety.: Named for Paula Keeler nee Zumbühler of Bellingham, WA, who discovered this species.

Inter species sect. *Polyanthae* planta haec mediocris, pedunculo tereti folio majore dimidio, flore successivi illis *M. bicolori* Rchb.f. similis.

Plant medium in size, presumably epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 1.5-2 cm long, enclosed by a loose, tubular sheath, and 1-2 others at the base. **Leaf** erect, thickly coriaceous, 7-12.5 cm long including the petiole 1-1.5 cm long, the blade elliptical, obtuse, 1.5-2.2 cm wide, narrowed below into the petiolate base. **Inflorescence** a lax, successively few-flowered raceme borne by an erect, terete peduncle 6 cm long, with a close bract near the base, from low on the ramicaul; floral bracts 10 mm long; pedicels 10-20 mm long; ovary 5 mm long; **sepals** glabrous, the dorsal sepal light green, the blade obovate, 10 mm long, 6 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical tube, the free portion triangular, acute, contracted into an erect, slender, green tail ca. 25 mm long, the lateral sepals rose-purple, light green toward the base, connate 15 mm into an ovate, bifid lamina, with a shallow mentum, expanded beyond the tube, 17 mm long, 14 mm wide, the apices obtuse, close, contracted into similar tails 17 mm long; **petals** white with pink dots on the callus, oblong, 6 mm long, 1.8 mm wide, the apex subtruncate-retuse, the labellar margin with a longitudinal callus ending near the base; **lip** rose, diffusely dotted with purple, confluent at the base, oblong-subpandurate, 6 mm long, 2.5 mm wide, shallowly channeled medially, with marginal folds above the middle, the epichile ovate, acute, entire, the hypochile oblong, subcordate at the base, hinged beneath; **column** white with purple margin, semiterete, 5 mm long, the foot stout, 2 mm long, spotted with purple, with a short, incurved extension.

ECUADOR: **Morona-Santiago**: Capsules collected by Paula Keeler from cut trees along the new road below Chigüinda toward Gualaquiza, alt. 1273 m, Oct. 1997, seedling cultivated in Wilmington, NJ, Sept. 2001, by *Malli Rao 56* (Holotype: MO), C. Luer illustr. 20041; sibling seedling cultivated Dec. 2001 by *Malli Rao 56A* (MO).



Mature capsules were collected by Paula Keeler from plants in felled trees along the road being constructed to Gualaquiza from Sigsig in 1997. The capsules were flasked by Kelsey Creek Laboratory, and seedlings were distributed for cultivation. Two seedlings have been found to be identical.

The plants are characterized by relatively large, fleshy, shortly petiolate leaves similar to many in subgenus *Polyantha*. The flowers, produced in a successively flowered raceme, and with lips divided by marginal folds, are borne by a slender, terete peduncle. This immediately places it in section *Polyanthae*, where 16 species are known, and none of which can be confused with this species. The flower with a yellow dorsal sepal and connate, dark purple lateral sepals is most similar to that of *M. bicolor*, which is borne in a simultaneously two- or three-flowered raceme by a stout, triquetrous peduncle.

The possibility of a naturally occurring hybrid immediately arose, but identifying a parent with a terete peduncle came to naught. The nearest, most similar species is *M. mayaycu* from the Cordillera del Condor, with a much smaller habit and a much longer peduncle.

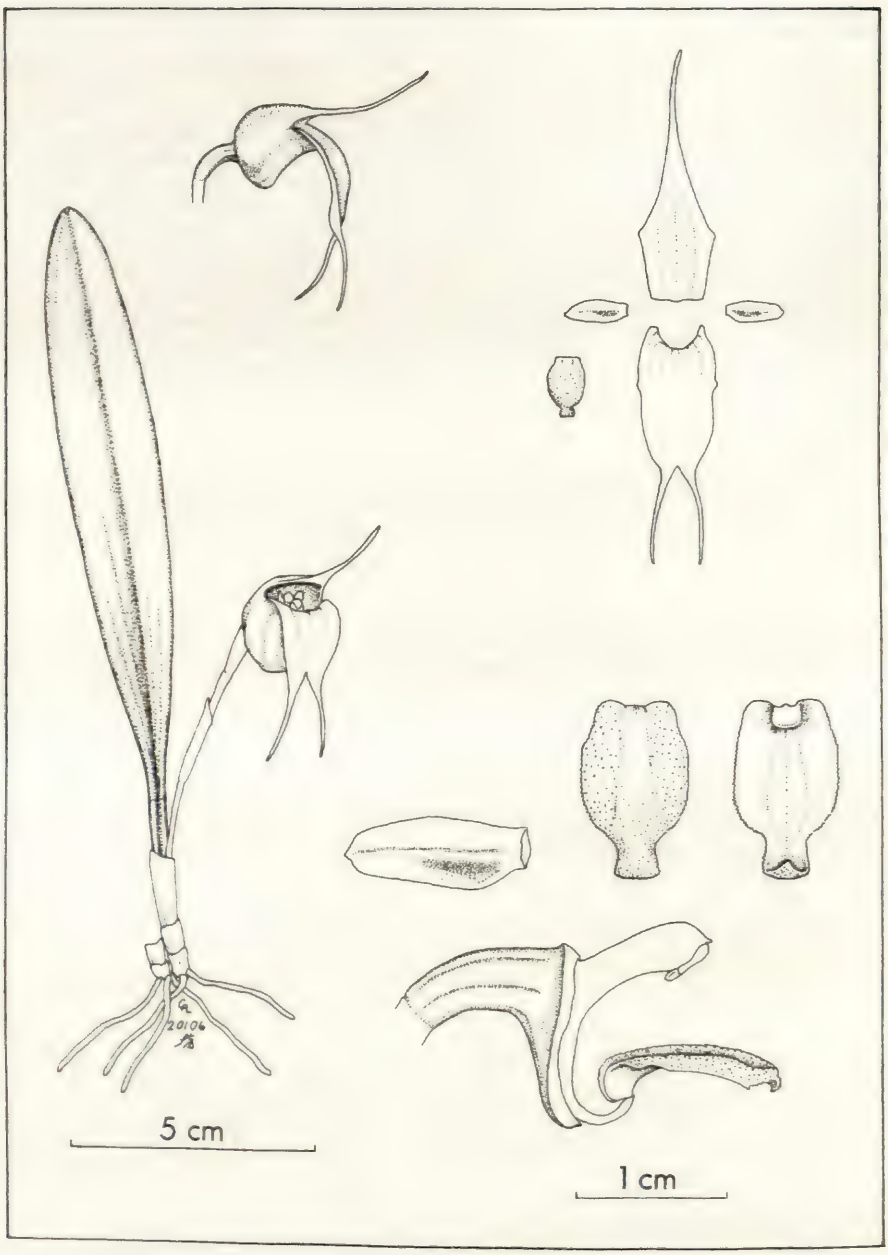


Plate 535. Masdevallia velella

Masdevallia lappifera Luer & Hirtz, sp. nov.

Ety.: From the Latin *lappifer*, "bur-bearing," referring to the markedly prickly apex of the lip.

Species haec *M. hystrici* Luer affinis, sed habitu minore cum pedunculo breviore, sepalis petalisque albis, sepalorum caudis brevioribus, petalis late obovato differt.

Plant medium in size, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** thickly coriaceous, erect, 8 cm long including an indistinct petiole 1 cm long, narrowly oblong, obtuse, the blade 1.5 cm wide dry, probably 2 cm wide fresh, cuneate below into the subpetiolate base. **Inflorescence** a solitary flower borne by a stout peduncle less than 1 cm long, with a basal bract, from low on the ramicaul; floral bract tubular, 1 cm long; pedicel 2 cm long; ovary 5-6 mm long, 5 mm wide; **sepals** light yellow with purple spots, rigidly fleshy, the dorsal sepal ovate, the blade 21 mm long, 9 mm wide, connate to the lateral sepals for 9 mm to form a broad, cylindrical tube, the free portion triangular, obtuse, contracted into a slender, white tail 14 mm long, the lateral sepals with a few, small, purple spots within, coalescing at the base, subovate, oblique, ca. 38 mm long, 17 mm wide, connate 7 mm, forming a deep mentum with the column-foot, the acute apices contracted into thick, white tails ca. 1.5 cm long; **petals** white with a broad, purple midvein and apex, cartilaginous, elliptical-obovate, obtuse, both margins obtusely angled near the middle, 11 mm long, 5.75 mm wide; **lip** white, dotted with purple, especially at the apex, thickly cartilaginous, oblong-elliptical, 15 mm long, 8 mm wide, the margins erose above the middle, fimbriate at the apex, the apical fifth markedly spiculate, obtuse, the disc subverrucose, shallowly concave between a pair of low calli, the base truncate, hinged near the end; **column** white with purple margins, semiterete, 11 mm long, the foot equally long with a short, incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Zumba, alt. 1200 m, cultivated at Ecuagenera, Gualaceo, 10 Nov. 2001, *A. Hirtz 7835* (Holotype: MO), C. Luer illustr 20076.

This species of section *Coriaceae* is apparently endemic in southernmost Ecuador. The bristly apex of the lip is very similar to that of *M. hystrix*. Vegetatively, *M. lappifera* is considerably smaller with a very short peduncle less than one centimeter long. The sepals are white and connate into a rigidly fleshy, broad cylindrical tube with tails about equally long. The petals are short and broad and obtusely angled on both margins. When extended, the large lip overhangs the short distance that the lateral sepals are connate. The tip of the lip is densely covered by spicules.

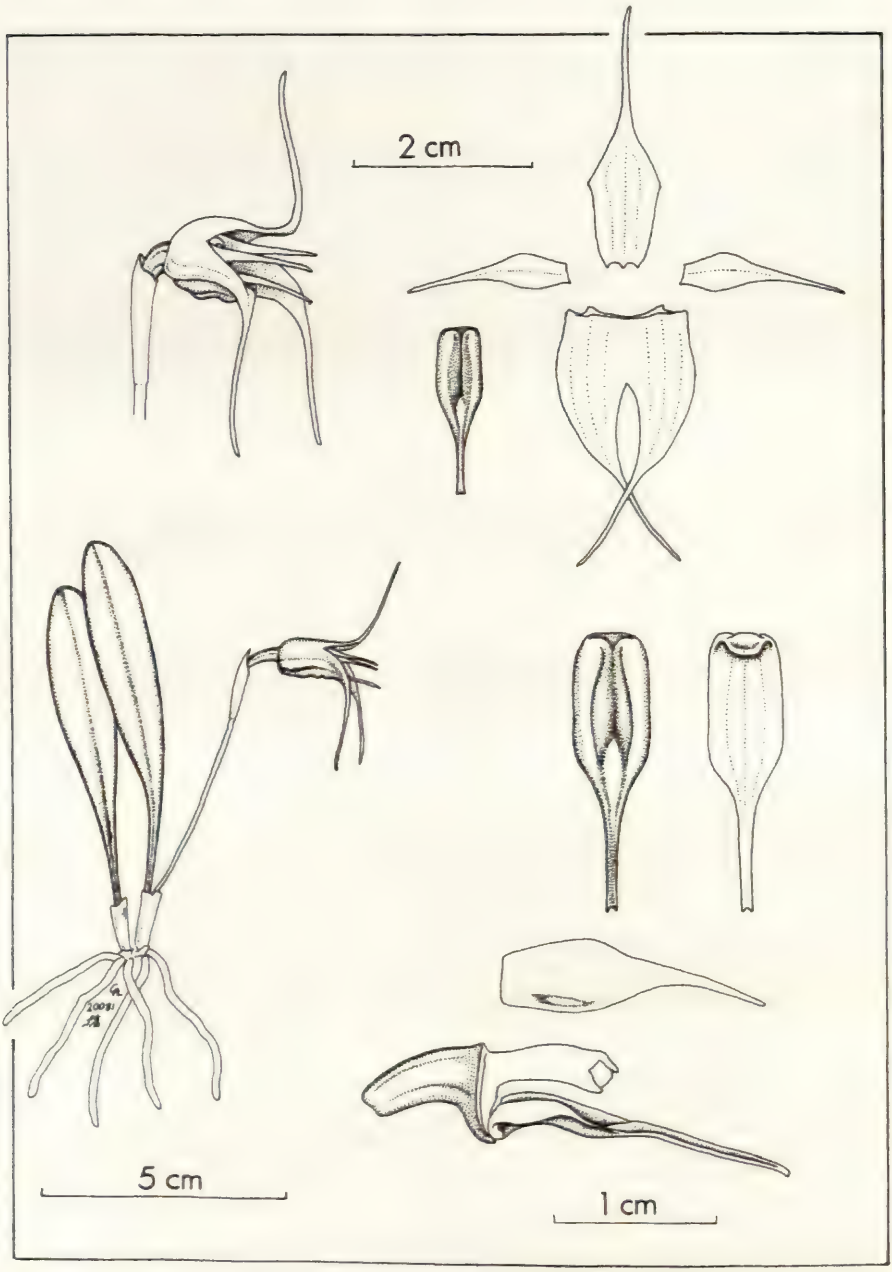


Plate 536. Masdevallia smallmaniana

Masdevallia velella Luer, sp. nov.

Ety.: From the Latin *velella*, "a small curtain," referring to a smaller, descending synsepal, the "curtain," than that of *M. velifera*.

Species haec *M. veliferae* Rchb.f. affinis, sed habitu floreque minoribus, sepalis flavis et labello infra apicem constricto differt.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, dark green, 10-12 cm long including the petiole ca. 1 cm long, the blade narrowly elliptical-oblong, subacute to obtuse, 1.7-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a large, solitary flower, borne by an erect, stout peduncle 3-4 cm long, with a bract near the base, from near the base of the ramicaul; floral bract tubular, 2 cm long; pedicel stout, 2.5 cm long; ovary thick, 1 cm long; **sepals** fleshy, yellow, glabrous, the dorsal sepal ovate, 52 mm long including the tail, 15 mm wide, connate to the lateral sepals for 14 mm to form a broad, cylindrical tube, the free portion triangular, acute and acuminate into a slender, forwardly directed tail ca. 2 cm long, the lateral sepals connate 28 mm into a rectangular, decurved, bifid lamina 30 mm long, 16 mm wide, the base forming a broad, deep mentum beneath the column-foot, the free portions short, acute, contracted into slender ca. 20 mm long; **petals** yellow-green, thickly cartilagenous, oblong, obtuse, 12 mm long, 5 mm wide, slightly concave medially, slightly dilated along the lower margin below the middle; **lip** dull purple with dark purple verrucae, elliptical-oblong, contracted below the middle into a truncate apex with the tip obtuse and decurved, 12 mm long, 7 mm wide, the disc diffusely and minutely verrucose, with an obscure, low pair of longitudinal calli, the base truncate, hinged beneath; **column** light yellow-green, semiterete, 10 mm long, the foot 10 mm long with a slender, incurved extension 4 mm long.

COLOMBIA: **Antioquia**: near Puerto Urabá, near sea level, collected by J.M. Serna, obtained from Orquídeas del Valley #136 by Rao, flowered in cultivation in Wilmington, DE, Mar. 2002, by *V.N.M. Rao 85* (Holotype: MO), C. Luer illustr. 20106.

This species, only recently discovered growing near sea level near the Gulf of Urabá on the northern coast of Colombia, is obviously closely related to *M. velifera* that grows in the Central Cordillera over 2000 meters above sea level. Superficially, the flowers are very similar. From the latter, *M. velella* differs with a smaller habit, smaller yellow flowers, and a lip constricted below the apex.

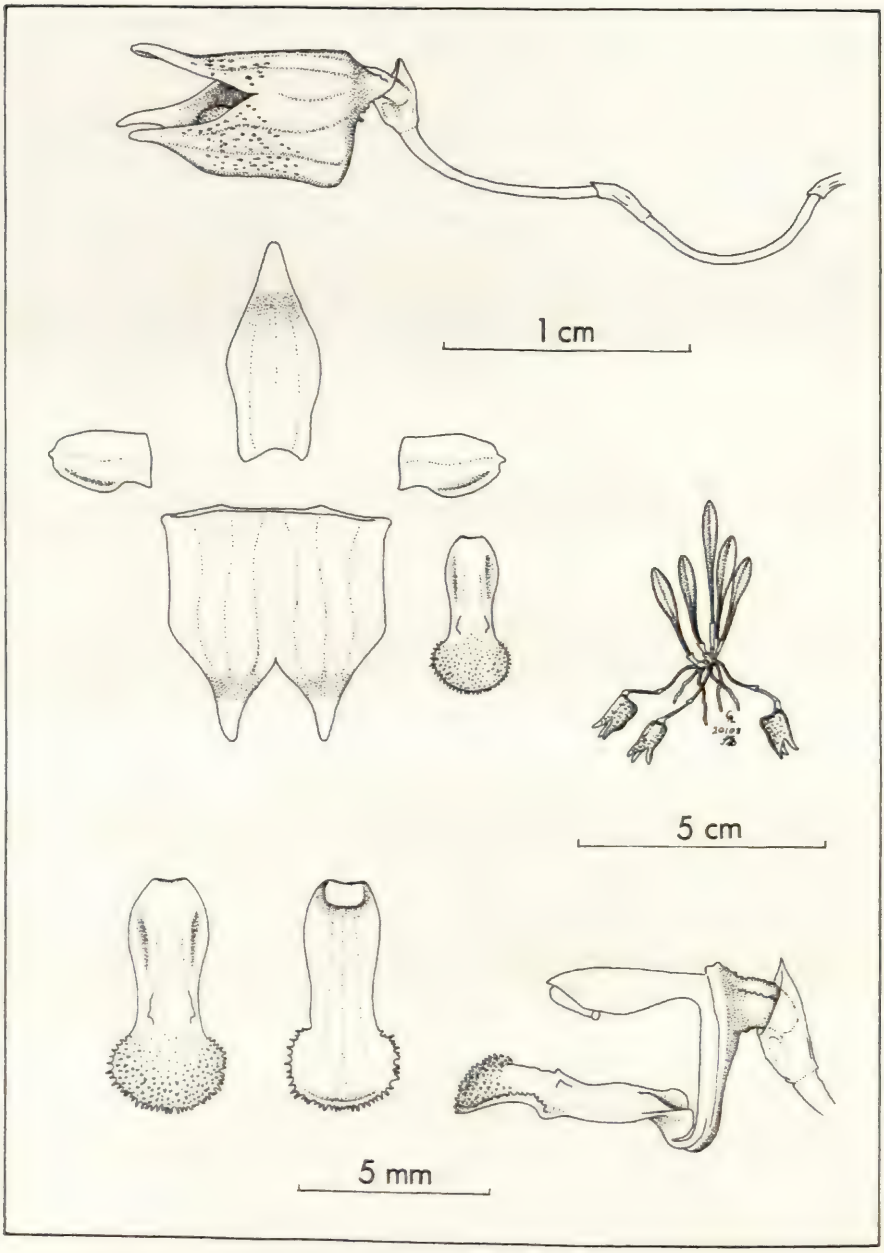


Plate 537. Masdevallia strattoniana

Masdevallia smallmaniana Luer, sp. nov.

Ety.: Named for Don Smallman of Halpringham, Norfolk, England, who cultivates this species in the British National Collection of *Masdevallia*.

Planta mediocris, pedunculo foliis subaequilongo unifloro, sepalorum caudis quam laminis leviter brevioribus, petalis longiacuminatis et labello oblongo supra medium anguste lineari protuberanti.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, obtuse, 7-8 cm long including an indistinct petiole ca. 1 cm long, 1-1.5 cm wide, gradually narrowed below into an indistinct petiole ca. 1 cm long. **Inflorescence** a single flower, borne by an erect peduncle, 5-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 13 mm long; pedicel 10 mm long; ovary 6-7 mm long; **sepals** olive green, lightly suffused with brown, glabrous, the dorsal sepal oblong, 32 mm long including the attenuated apex, 8 mm wide, connate to the lateral sepals for 9 mm into a cylindrical tube, the free portion triangular, acute, attenuate into an erect, slender tail ca. 12 mm long, the lateral sepals oblong, oblique, acute, 30 mm long, connate 6 mm, 14 mm wide together expanded, the free portions narrowly triangular, acute, with slender, decurved tails ca. 10 mm long; **petals** greenish, red-brown above the middle, obovate below the middle, contracted into a subulate apex, 17 mm long, 5 mm wide, with a small, oblong, obscure callus above the lower margin; **lip** greenish, red-brown above the middle, protruding, 18 mm long, 5 mm wide, 3-veined, oblong below the middle, contracted above the middle into narrowly linear-subulate apex, the disc shallowly concave with a midline callus extending forward onto the apex, the base subcordate, concave beneath, broadly hinged on the end; **column** green, semiterete, 8 mm long, the apex tridentate, the foot thick, 3 mm long with the incurved extension broad, continuous with the hinge of the lip.

ECUADOR: without locality, alt. 2000-2500 m, obtained from New World Orchids by the British National Collection of *Masdevallia*, flowered in cultivation at Royden Orchids in Grand Missenden, England, Feb. 2002, by *R. Barrow RO11* (Holotype: MO), C. Luer illustr. 20081.

This unique species is apparently endemic in Ecuador, known from only one collection and without known locality. Vegetatively not remarkable, it is characterized by a single, olive-green flower held about as high as the leaves. The sepals are connate into a cylindrical tube with the acute free portions contracted into tails slightly shorter than the blades. Most remarkable are the red-brown, subulate tips of the petals and lip that protrude from the tube, reminiscent of *M. audax*.

The subgenus to which this species should be assigned in not obvious, but it seems more similar to the non-conforming species of subgenus *Pygmaea* than to any of the other subgenera.

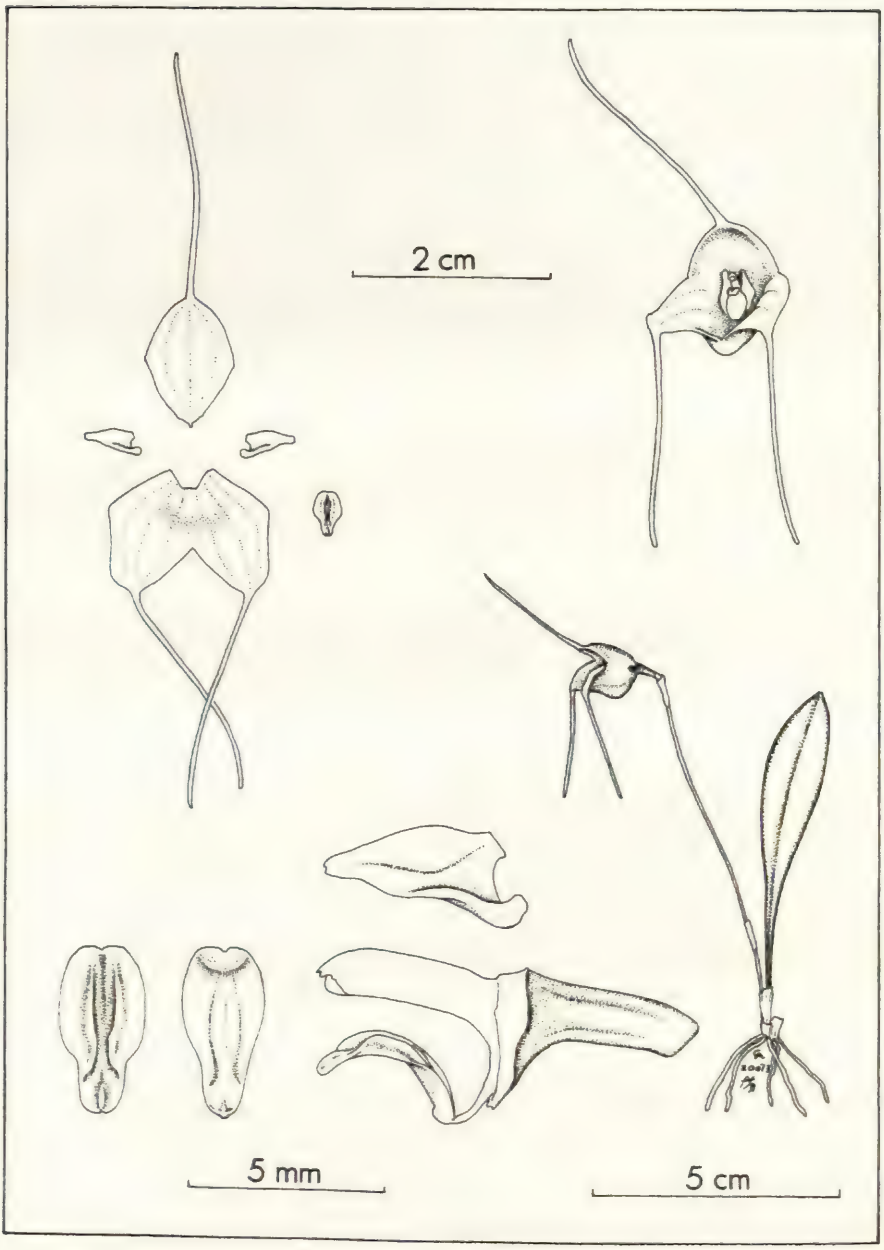


Plate 538. Masdevallia calocalix

Masdevallia strattoniana Luer & Hirtz, sp. nov.

Ety.: Named in honor of Charles S. Stratton (1838-1883), General Tom Thumb, who was exhibited by P.T. Barnum as the world's smallest man.

Species haec *M. hoeijeri* Luer & Hirtz affinis, sed sepalis acutis incrassatis ecaudatis, et labello pandurato apice rotundo dense minute spiculato differt.

Plant very small, epiphytic, densely caespitose; roots slender. Ramicauls slender, suberect to erect, 3-7 mm long, enclosed by 2-3 thin, tubular sheaths, **Leaf** erect, coriaceous, narrowly obovate, subacute, petiolate, 12-25 mm long including a petiole 5-10 mm long, 2.5-3.5 mm wide, gradually narrowed below to the petiole. **Inflorescence** a solitary flower borne by a prostrate or pendent peduncle, 15 mm long, with a bract near the middle and at the base, from low on the ramicaul; floral bract thin, infundibular, 3 mm long, enclosing pedicel, vestigial bud, and lower half of the ovary; pedicel 1.5 mm long; ovary 1.5 mm long, 1.25 mm wide, with 3 low crests; **sepals** fleshy, cream colored, widely flecked with purple-brown, glabrous, the dorsal sepal elliptical-obovate, 9 mm long, 4 mm wide, connate to the lateral sepals for 5 mm to form a broad, cylindrical sepaline tube, the free portion triangular with the acute apex thickened, the lateral sepals each connate 4 mm to the column-foot to form a deep mentum, connate to each other 6 mm into a subquadrate lamina 9 mm wide when expanded, 9.5 long, the free portions triangular, acute, thickened; **petals** white with a purple midvein, suboblong, the apex obtuse, apiculate, 4.5 mm long, 2.5 mm wide, the labellar margin dilated avove the basal third with a callous margin; **lip** red, subpandurate, 6.5 mm long, 2 mm wide, 3 mm wide at the apex, the disc shallowly sulcate between a pair of acute calli above the middle, the apex rounded, densely and minutely spiculate, the base truncate, hinged beneath; **column** green, semiterete, without teeth, 4 mm long, the foot 4 mm long, with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in forest, Parqué Nacional Podocarpus, alt. 1500 m, cultivated at Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8102* (Holotype: MO).

This little species, known only from southeastern Ecuador, is similar to *M. hoeijeri* and its relatives. It is distinguished from them by the creeping or pendent peduncle that bears one proportionately large flower, but with a bud within the floral bract. The purple-speckled sepals are deeply connate to an elongated column-foot and to each other and to form a broad tube terminated by three, acute, tailless apices. The broad petals are callous along the lower, dilated margin. The apex of the lip is broadly rounded, and diffusely and minutely spiculate.

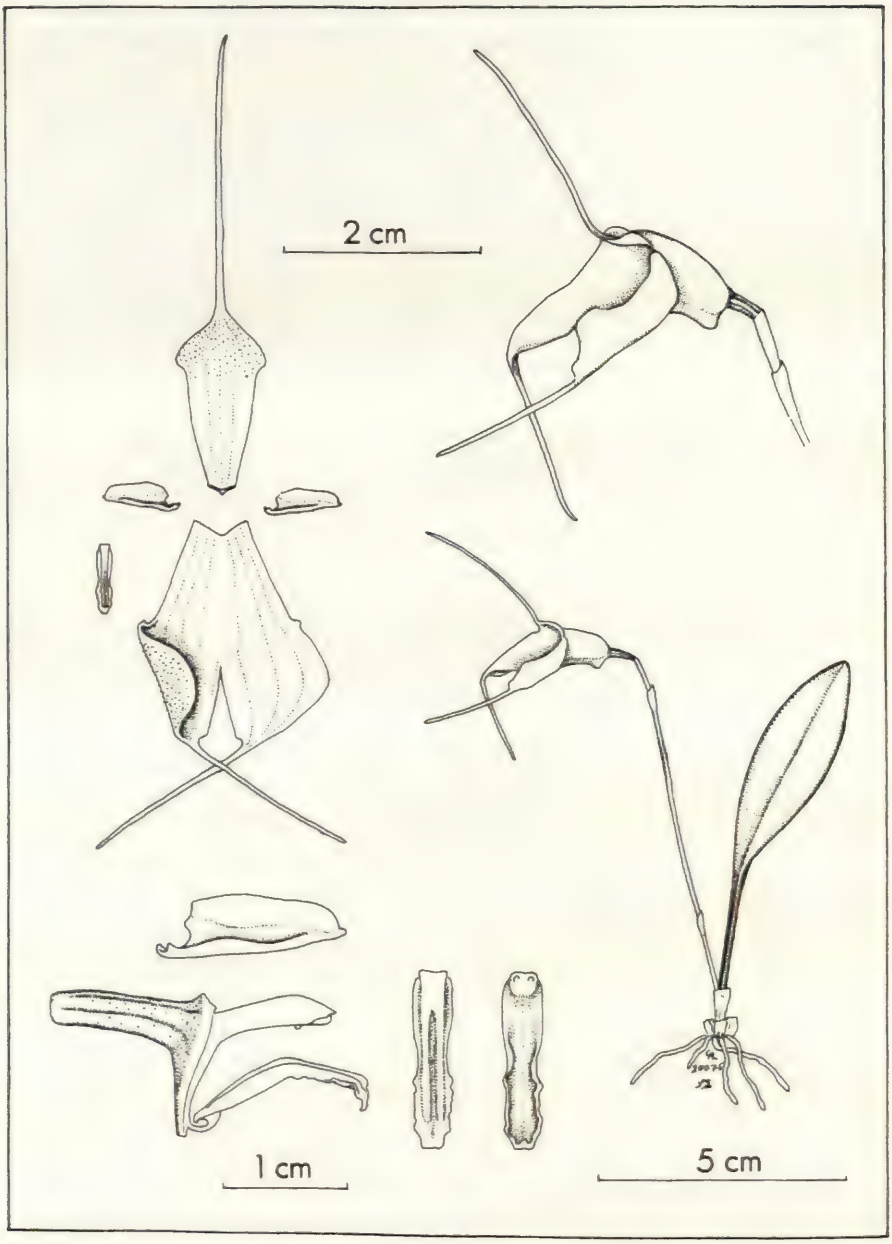


Plate 539. Masdevallia repanda

Masdevallia calocalix Luer, sp. nov.

Ety.: From the Greek *kalokalyx*, "a pretty cup," in reference to the sepaline cup.

Species haec *M. laevis* Lindl. affinis, sepalorum cupula late mentosa, et labello bicalloso supra medium angustato ad apicem unicalloso differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, ca. 1 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7 cm long including a petiole 1.5-2 cm long, the blade elliptical, subacute, 1.3 cm wide, the base cuneate into the petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 7 cm long, from low on the ramicaul; floral bract 7-10 mm long; pedicel 7-10 mm long; ovary 3 mm long; **sepals** light brownish purple, glabrous to cellular-glandular, the dorsal sepal elliptical, obtuse to rounded at the apex, anteflexed, 12 mm long, 9 mm wide, connate to the lateral sepals for 6 mm to form a cup, the apex abruptly contracted into a slender, purple tail 26 mm long, the lateral sepals elliptical, oblique, 12 mm long, 9 mm wide, connate 6 mm into a broad mentum, the apices obtuse, contracted into slender, descending tails 23 mm long; **petals** white, suboblong-triangular, 4.5 mm long, 2 mm wide, the apex narrowed, minutely dentate, with a longitudinal wing-like callus along the lower margin ending in a thick triangular, incurved process above and beyond the base; **lip** marked with purple, oblong-subpandurate, narrowed above the middle, 4 mm long, 2 mm wide, the disc sulcate centrally between a pair of longitudinal calli, the apex rounded, with a short callus ending at the margin, the base trincate, flexibly hinged to a slender extension from the tip of the column-foot; **column** semiterete, 4.5 mm long, with a thick foot 1 mm long plus an equally long extension.

ECUADOR: **Morona-Santiago**: below Chigüinda, alt. 1400 m, cultivated at Ecuagenera, Gualaceo, Dec. 2001, *A. Hirtz 7840* (Holotype: MO), C. Luer illustr. 20073.

This species, apparently endemic in Ecuador, is superficially similar to the variations seen in *M. laevis*. It is characterized by small, elliptical leaves, and an equally long, erect peduncle. The light brownish purple sepals are connate about half their length into a bell-shaped, sepaline cup with the petals and lip visible and standing erect on the back wall above a broadly rounded mentum. The thick basal process of the petals extends beyond the base. For four-fifths its length, the lip is channeled between a longitudinal pair of calli that terminate at a narrowing of the distal fifth.

Masdevallia repanda Luer & Hirtz, sp. nov..

Ety.: From the Latin *repandus*, "bent backward," referring to the sides of the lateral sepals.

Species haec *M. os-viperae* Luer & Andreetta affinis, sed sepalorum laterum dilatatis repandis, petalorum processu elongato canaliculato, labello angustissime oblongo differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-8 cm long including the petiole 2-2.5 cm long, the blade elliptical, acute, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a slender, erect peduncle 6 cm long, with a bract above the base, from the base of a ramicaul; floral bract tubular, 6 mm long; pedicel 12 mm long; ovary 5 mm long; **sepals** pale yellow, darker yellow centrally, glabrous externally, the dorsal sepal cellular within, obovate, 17 mm long, 9 mm wide, the apex obtuse, contracted into a slender tail 30 mm long, connate to the lateral sepals for 13 mm into a horizontal, infundibular tube, the lateral sepals minutely short-pubescent, subobovate, oblique, connate 14 mm into a widely expanded, bifid lamina, 23 mm long, 11 mm wide, dilated beyond the sepaline tube with the sides revolute, the apices obtuse, oblique, contracted into slender tails 18 mm long; **petals** white, cartilaginous, subtriangular, 6.5 mm long, 2.5 mm wide, the apex subtruncate-lobulate, the labellar half with a longitudinal callus ending in a retrorse, channeled process beyond the base; **lip** orange, narrowly oblong, 7.5 mm long, 1.5 mm wide, the margins and obtuse apex thin, undulating, recurved, the disc with a flat basal callus that forks into a longitudinal pair of parallel calli, shallowly sulcate between, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 4 mm long, with a slender, incurved extension.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, above Nambija, alt. 1700 m, cultivated at Ecuagenera, 10 Nov. 2001, *A. Hirtz 7843* (Holotype: MO), C. Luer illustr. 20075.

This species, found in the Cordillera del Condor, is related to *M. os-viperae, M. rana-aurea,* and *M. trautmanniana*, all four of which are characterized lateral sepals dilated beyond a cylindrical, sepaline tube, and a narrowly oblong lip with a pair of longitudinal calli. This species is distinguished from them by a marked dilatation and recurving of the sides of the lateral sepals beyond the tube. The basal process of the petals is longer with a revolute margin; and the lip is narrower with thin, undulating margins.

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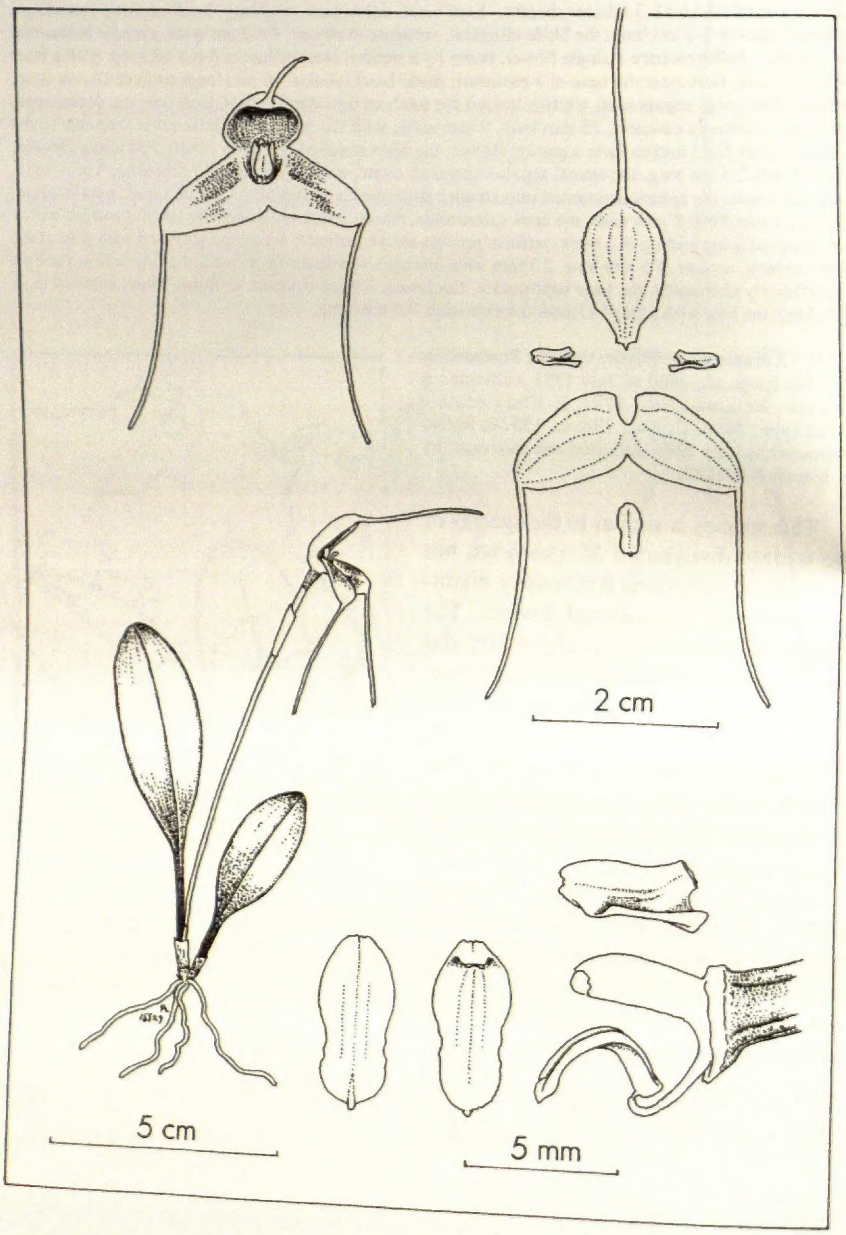

Plate 406. Masdevallia cloesii